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Award Number: W81XWH-07-1-0621

TITLE: Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SIMCRITTER)

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PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

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SIMULATION CRISIS TEAM TRAINING EFFECT ON RURAL HOSPITAL SAFETY CLIMATE (SIMCRITTER)

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Honolulu, HI 96816-2333

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13. SUPPLEMENTARY NOTES

N/A

14. ABSTRACT

Simulation-based training is evolving new paradigms for medical education, critical skills development, teamwork, and patient safety in hospitals. High-fidelity human patient simulator (Manikin)-based training is utilized in hospital crisis team training (CTT), and other patient safety-related areas. Rural hospital safety environments differ from urban hospitals. The primary objective of the proposed study is to measure the impact of a manikin-based CTT curriculum on safety culture in a rural hospital emergency response team. The study utilizes standardized CTT and a widely utilized Safety Climate Survey (SCSu). It is hypothesized that CTT in a rural hospital will result an improved cohort safety climate. This research will inform the development of military specific training regimes for expanding simulation-based medical training capacity in the Military Health System. A research project was completed which followed the proposed plan and was approved by institutional review boards. Results confirm that the safety climate in the rural hospital improved during the interval during which crisis team training was introduced, and simulation based education and training became available for additional hospital based programs.

15. SUBJECT TERMS
Safety, Training, Curriculum, Simulation

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE	UU		USAMRMC
U	U	U	2	141	19b. TELEPHONE NUMBER *(include area code)*

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Introduction

American healthcare practices have undergone revolutionary changes since the 1999 publication of the Institute of Medicine report which identified significant opportunities to improve healthcare outcomes, through what has become known as the patient safety movement[1,2] . The US Department of Health and Human Services Agency for Healthcare Research and Quality (AHRQ) has sponsored extensive research on patient safety, including research on measurement of safety indicators, interventions, and epidemiology of medical errors [3]. The National Quality Forum (NQF) in 2003[4] endorsed a set of 30 "Safe Practices for Better Healthcare", the first of which was "create a healthcare culture of safety." An updated list of NQF endorsed practices was published in 2006, reflecting new evidence and innovation; again, "create and sustain a healthcare culture of safety" was listed as the first endorsed Safe Practice[5]. Creating a culture of safety is a complex and multidimensional endeavor. Approaches to creating a culture of safety include education and team building. Simulation based team training is an innovative methodology which may be uniquely suited to creating and sustaining a culture of safety. The primary objective of the proposed study is to measure the impact of a manikin-based medical crisis team training (CTT) curriculum and introduction of simulation based hospital training on safety culture in a rural hospital emergency response team. The study utilizes a standardized established CTT and a widely utilized Safety Climate Survey (SCSu). It is hypothesized that introduction of simulation based training programs and CTT in a rural hospital will result an improved hospital safety climate. This research will inform the development of military specific training regimes for expanding simulation-based medical training capacity in the Military Health System.

Body

High-fidelity human patient simulator (Manikin)-based training has been effectively utilized in standardized hospital crisis team training, anesthesia training, and other patient safety related clinical areas. This study proposes to measure the impact of a novel educational intervention — a manikin-based, safety-focused provider education curriculum — on safety culture in a rural hospital emergency response team. Please see Appendix A-1 for Statement of Work.

Task 1: Provide train the trainer CTT curriculum for HMC staff research program CTT instructors

FINAL REPORT STATUS:
Train the trainer CTT curriculum for HMC staff simulation instructors was provided through SimTiki Simulation Center by University of Hawaii faculty. Two instructors received Crisis Team Training instructor orientation and simulation center operations training. The dates of training at the University of Hawaii SimTiki Simulation Center were 11/26/07, 12/14/07 and 2/22/08. On-site training and orientation at Hilo Medical Center was provided by University of Hawaii faculty and staff on 8/22/07, 3/10/08, 3/11/08, 3/12/08 and 3/13/08. Please see Appendix A-9 for list of personnel receiving pay from the research effort.

Task 2: Procure install and verify function of equipment for simulation based training at Hilo Medical Center

FINAL REPORT STATUS:
Equipment and supply procurement was completed for simulation center installation and facility renovation. All budgeted simulation equipment was purchased and installed to develop a multifunctional high fidelity simulation capability. Operational use has been verified for an interval of over 7 months, verifying full functionality. Audio video integration and high fidelity manikin based education and training has been integrated into routine hospital operations. All equipment procured for this task through this project will remain at Hilo Medical Center for continued hospital based simulation facilitated training.

Task 3: Prepare and obtain Local (HHSC) and 2nd tier (MRMC HSSRB) IRB review and approval

FINAL REPORT STATUS:

IRB submission was reviewed and approved by the TATRC review activity. Protocol submission to HSRRB and Kapiolani Hawaii Pacific Health System IRB at Kapiolani Medical Center was approved and completed in July 2008. Exempt status was granted. The final execution of IRB Authorization Agreement between UCERA and HPH was completed in August 2008. ORP/HRPO exempt approval was granted on 20 August 2008. Please refer to Appendices A-2, A-3, A-4 for IRB approvals.

Task 4: Recruit subjects:

a. Prepare recruitment material
b. Recruit 45 Hospital Code Team Members to participate in Standardized Crisis Team Training.

FINAL REPORT STATUS:
Coordination meetings with the HHSC project team and University of Hawaii Telehealth Research Institute project management consultant team were conducted on a monthly or more frequent basis. Completed a scheduled program of Crisis Team Training at Hilo Medical center for 45 hospital staff members on March 11, 12 and 13, 2008, as reported in the program quarterly report #3. Crisis Team Training was completed in advance of protocol approval, and was not conducted with consent. This strategy was selected to provide Crisis Team Training (a standard CME certified education program as defined in the protocol and as utilized on a regular basis at the University Hawaii, John A Burns School of Medicine) in conjunction with advanced simulation based train-the- trainer activity at Hilo Medical Center, and to coincide more closely with initiation of the operational simulation center. This strategy did not impact the ability to evaluate the research data as planned, and did not violate human subjects research. A review by the IRB of record has been conducted in conjunction with the revisions requested for this final report. This review concluded no protocol violations or change in exempt status occurred due to the change in protocol. The approved protocol did not require participant consent. Please refer to Appendix A-10 for HPH IRB letter.

Task 5: Prepare for training:

a. Assemble six teams of 5-8 individuals to participate, in simulator-based CTT training.
b. Prepare training materials, training area, and technical infrastructure

c. Collate existing baseline Safety Climate Survey results

FINAL REPORT STATUS:
Completed Crisis Team Training for 45 Hilo Medical Center Staff on March 11, 12 and 13, 2008. University of Hawaii subcontractor provided crisis team training course preparation training for Hilo Medical Center simulation center staff as noted in Task 1. Training was conducted through a sequence of events that are routinely utilized for preparation of instructors for simulation based medical training. Step 1: Participate as a student in the course; Step 2: Observe the course as an instructor candidate with one-on-one mentoring; co-instruct the course. This process was completed utilizing the Crisis Team Training Curriculum. The training materials consist of a comprehensive on-line series of power point presentations, Pre-test/Post Test material, and face- to- face "bedside" interactions with debriefing following a standardized format. CTT data entry form is included in Appendix A-7 and examples of the curriculum and training materials are in Appendix A-11.

Task 6: Conduct training:

a. Conduct training over a four week interval, in multiple sessions utilizing identical trained instructors and curriculum

FINAL REPORT STATUS:
Conducted Crisis Team Training at Hilo Medical Center utilizing identically trained instructors and curriculum. Forty-five individuals from the cardiac arrest team completed standardized crisis team training.

Task 7: Administer/retrieve surveys:

a. Subjects complete Safety Climate Survey (SCSu) 8-12 weeks following completion of all training sessions
b. All hospital personnel (~300 persons) simultaneously complete Safety Climate Survey
c. Obtain (retrieve) historical hospital staff SCSu & SCSu score results, collected on two previous occasions

FINAL REPORT STATUS:
The Safety Climate Survey was administered to hospital personnel after receiving IRB exempt approval. Eight hundred surveys were distributed. The response rate was 46%, yielding 365 returned surveys. The historical 2007 response rate was 34%.
Historical data was collected through review of Hilo Medical Center records of collated data from prior year annual Safety Climate Surveys. Identical data collation tools were utilized for recording of primary data. Please refer to Appendix A-2 for the Hilo Medical Center Safety Climate Survey and Appendix A-12 for a representative data collation tool. The low response rate for the safety climate survey is consistent with the historical response rates. Published response rates for safety climate surveys conducted in multiple military facilities yielded a similar response rate of 40% [6]. Reasons for low response rate may include variable response rates in specific groups of personnel, although this was not able to be determined from the data collected in the serial surveys reviewed for this report. An accurate denominator (total number of employees in each category) for each job description was not available in the data sets collected. The response rate for the study survey is consistent with response rates in other settings. Specific factors which may influence survey response rates include absence of incentives, fear of non-anonymity, and the risk of "drop-off" inherent to self-administered surveys, as survey length increases. Inherent in low response rates is the potential for skewed responses

limiting generalizable conclusions.

Task 8: Format, analyze, and interpret data

a. Input and format all data into database
b. Analyze data for the following:
   - Comparison of safety climate survey scores in identified cohorts
   - Comparison of concurrent and historical safety climate survey score differences in the CTT trained investigational cohort and non-CTT trained cohort to detect differences in safety climate trends.
   - Sub-group analysis of hospital unit and discipline specific cohorts

FINAL REPORT STATUS:
Data was scored and summed using an Excel spreadsheet format represented in appendix A-8. Please refer to Appendix A-6 for survey scoring instructions. "Positive Safety Climate" perceptions are those that have a safety climate score of ≥ 75. Raw likert scale responses were entered, summed, and graphically displayed using standard Excel spreadsheet functions. Safety climate survey results from 2007 and 2008 have been compared using T-test for derivative data (Safety Climate Score), ANOVA for multiple group comparisons and Pearson Chi-Square for comparisons of means. The primary endpoints for this evaluation indicate an improved overall safety climate from 2007 to 2008. The safety climate was considered positive by 52% of respondents in 2008, versus 43% in 2007 ($p=0.016$). The hospital Safety Climate Mean was likewise significantly different between 2007 (mean = 3.7) and 2008 (Mean=3.87) ($p=0.006$). CTT and non-CTT trained cohort comparison was a planned secondary endpoint, and could not be analyzed due to inability to analyze subgroup response rates (noted above) and failure of participants to indicate CTT training status or CART team status on the survey instrument. Additional secondary outcome analysis reveals that Staff Nurse Safety Climate Scores were lower that the aggregate other staff members when data from 2007 and 2008 were combined. This difference approached significance ($p=0.051$) No differences were detected between 2007 and 2008 within or between these groups. These subgroups represent the groups with adequate numbers of participants for analysis. The primary study was not powered to detect subgroup effects in other subgroups. The relatively low overall survey response rates require the authors to caution that the results may not be reliable.

Task 9: Prepare and complete progress and final reports

a. MRMC quarterly, annual, and final reports
b. Scientific meeting presentations
c. Prepare and submit manuscripts for peer reviewed publication

FINAL REPORT STATUS:
Quarterly reports have been submitted to MRMC. A scientific meeting presentation and a manuscript prepared for publication are attached in Appendix A-13 and A-14.

Key Research Accomplishments

The accomplishments reported during this reporting interval are related to establishment of the training and coordination for collection of research data. Research data collection was completed in project year 2, as the POP was extended (see Appendix A-5). The accomplishments that support this are listed below:

- Completed IRB packets to USAMRAA Human Subjects Research Review Board and Kapiolani Hawaii Pacific Health IRB.
- Received approval of IRB exempt protocols and start letters.
- Contract modification completed to complete data collection and analysis
- The data collection specified in the USAMRAA contract and approved by the organizational IRB's was completed.
- Data analysis has been completed and presentations and manuscripts are prepared.

Reportable Outcomes

1. The original contract was modified to extend POP to November 9, 2008.
2. A fully functional high fidelity simulation training facility was established and equipped at Hilo Medical Center.
3. Submitted project's Technology Readiness Level (TRL) rating information requested by TATRC for MRMC and Technology Integration General Officer Steering Committee (TIGOSC) on 24 October 2008. Please see Appendix A-15.
4. The Safety Climate Survey was administered after receiving IRB approval.
5. Collected data has been reviewed and analyzed for journal submission and scientific presentation submission.
6. Data is summarized below. Analysis indicates that there was an increase in the overall hospital safety climate during the year in which simulation based training and crisis team training was introduced. Overall safety score was "positive" in 52% of 2008 survey respondents, compared to 43% in 2007 ($p=0.16$). There was however no change evident when compared to results from two years prior (53% in 2006 vs. 52% in 2008). Likewise the overall Hospital Safety Climate and Safety Climate Scores increased between 2007 and 2008. Subgroup analysis indicated that Staff Nurses had lower safety climate scores that nurse managers or other hospital employees completing the safety climate survey in 2007 and 2008. Multivariate analysis failed to reveal other year to year differences based on job description.
7. Discussion: The findings of this study indicate that multiple measures of the hospital safety climate increased during the year that a hospital based simulation training capacity was introduced, and crisis team training focused on teamwork was introduced. The findings support the hypothesis that introduction of simulation based training in a hospital may contribute to positive staff perceptions of leadership and patient centered care. A direct cause and effect relationship cannot be definitively attributed, since other positive hospital based initiatives were ongoing, such as a new construction of the emergency department and hospital leadership transitions. In addition to crisis team training, the hospital introduced simulation based training initiatives in multiple areas. These areas included the following courses which precluded the ability to isolate crisis team training as a unique training change which contributed to the positive changes in safety climate:
    - Rapid Response
    - EKG for Cardiovascular Unit
    - Assessments and Cardiac Meds (CV)
    - PALS
    - ACLS
    - ER~ Trauma Assessment
    - Procedural Sedation
    - TNCC Assessments
    - HazMat ~ Mascal triage

Safety climate trends from 2006 and earlier clearly were not the result of leadership based changes in training methods or support for innovative staff development, since no initiatives in these areas had been initiated prior to the simulation program.

DEMOGRAPHICS
2008 Safety Climate Survey

JOB DESCRIPTION	Sample Size	% of Total
Attending / Staff Physician	5	1.37%
Physician In Training	0	0.00%
Pharmacist	0	0.00%
Respiratory Therapist	9	2.47%
PT / OT / Speech	12	3.29%
Staff Nurse	164	44.93%
Other	116	31.78%
Support Associate	13	3.56%
Nurse Manager / Charge Nurse	18	4.93%
Administrator	3	0.82%
Technician	9	2.47%
Dietician	1	0.27%
Experience in Position		
Less than 6 months	19	5.21%
6 - 11 months	13	3.56%
1 - 2 years	42	11.51%
3 - 7 years	85	23.29%
8 - 12 years	53	14.52%
13- 20 years	74	20.27%
21 or more years	51	13.97%
Experience in Specialty		
Less than 6 months	15	4.11%
6 - 11 months	6	1.64%
1 - 2 years	39	10.68%
3 - 7 years	79	21.64%
8 - 12 years	53	14.52%
13- 20 years	73	20.00%
21 or more years	57	15.62%
Experience in Organization		
Less than 6 months	17	4.66%
6 - 11 months	15	4.11%
1 - 2 years	49	13.42%
3 - 7 years	69	18.90%
8 - 12 years	57	15.62%
13- 20 years	71	19.45%
21 or more years	44	12.05%
Age		
< 30	33	9.04%
30 - 35	28	7.67%
35 - 39	47	12.88%
40-44	57	15.62%
45 and >	170	46.58%

Data Summary
Safety Climate Survey

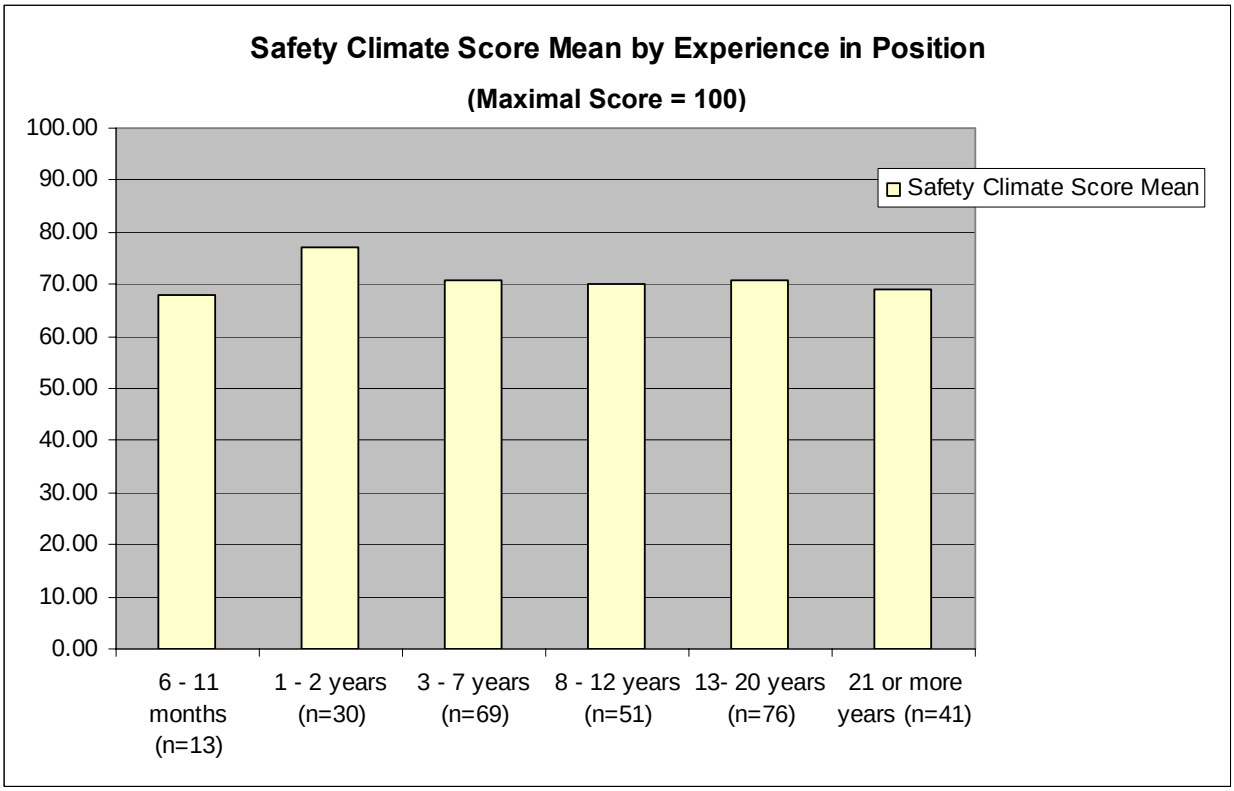
Year of Survey:	2005	2006	2007	2008
Number Surveys Distributed:	900	805	900	800
Number Responses Received:	132	316	309	365
Number Surveys Entered:	132	316	308	365
% Response:	15%	39%	34%	46%

	2005	2006	2007	2008
Safety Climate Score Mean (± SD):	67 (23)	71 (19)	67 (20)	71 (20)
			p = .006	
Safety Climate Mean (± SD):	3.69 (.94)	3.84 (.77)	3.70 (.81)	3.87 (.80)
				p = .006
Percent Respondents Viewing Safety Climate as Positive:	50%	53%	43%	52%
				p = .016

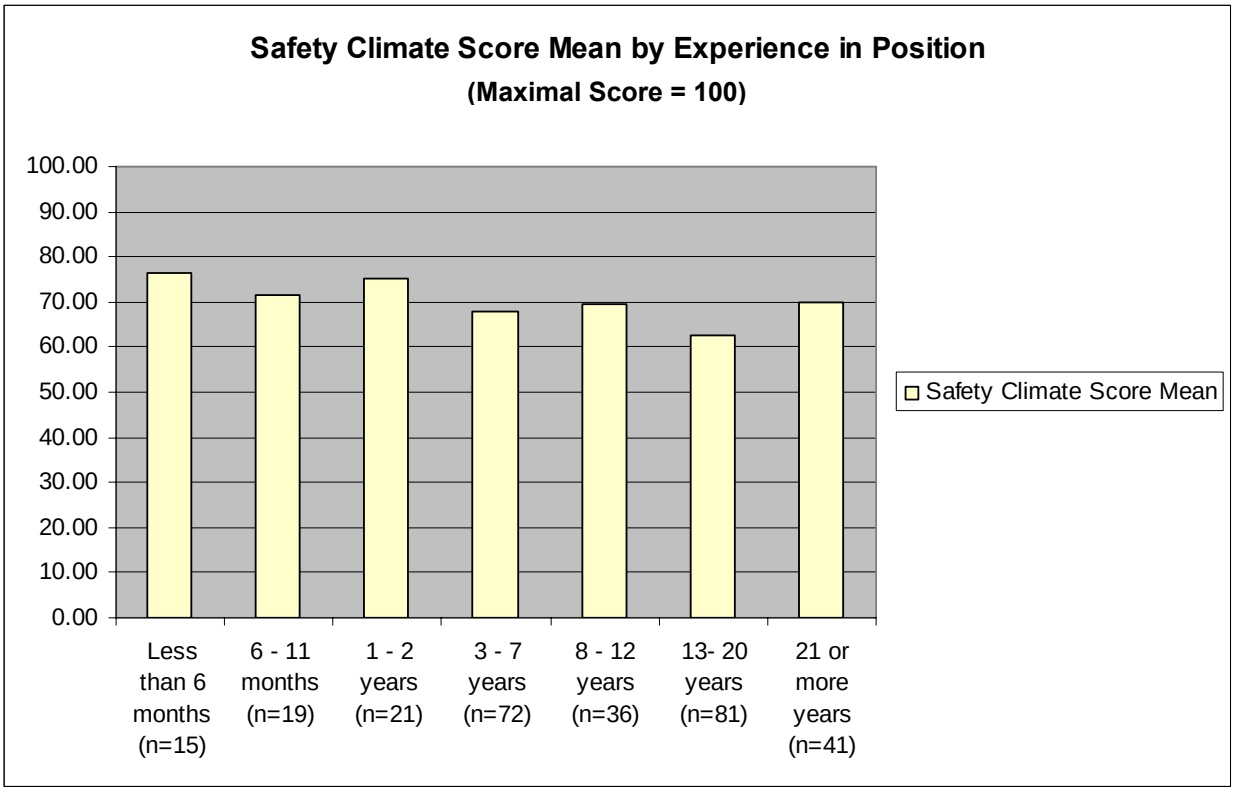
	2007 & 2008		
	Staff Nurses	Nurse Managers	Others
N:	369	38	238
Safety Climate Score:	68.2	74.11	72.25
	p = .042		

Representative Data Sorted by Experience in Position.

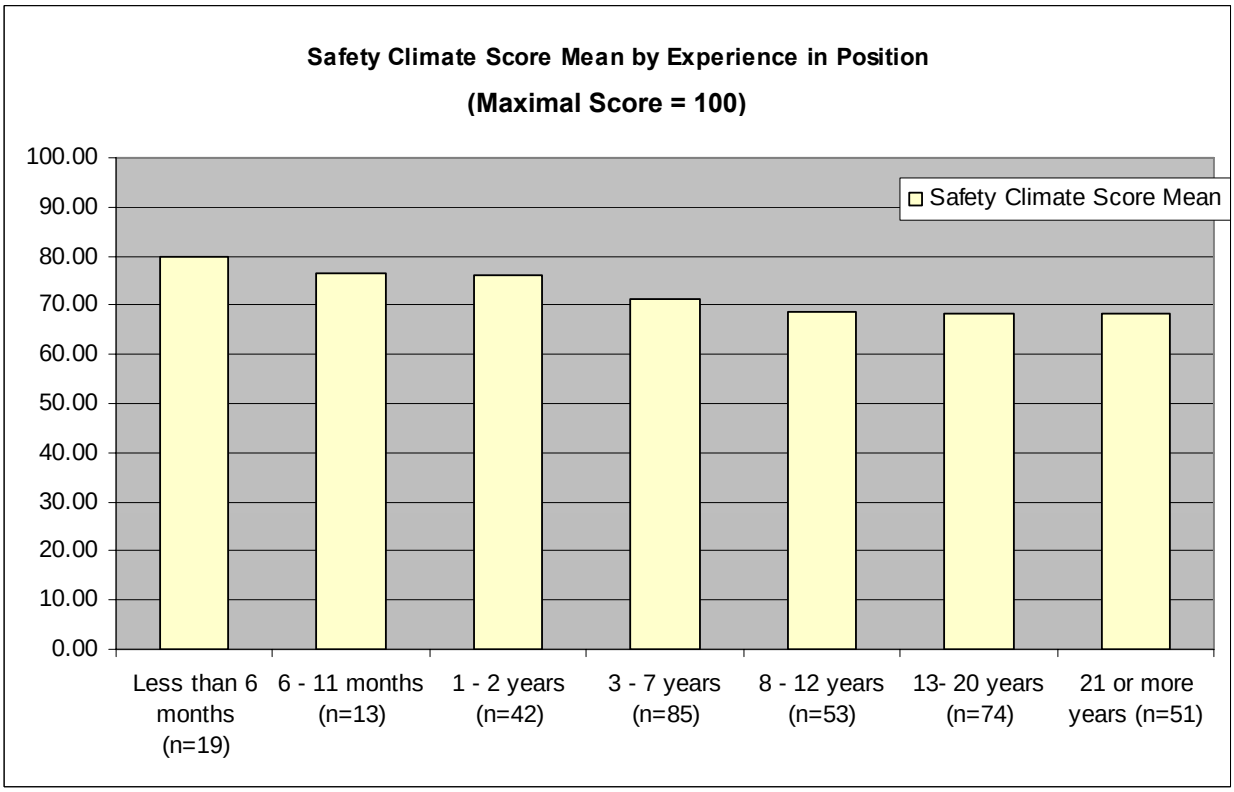
2006 Safety Climate Survey Summary



2007 Safety Climate Survey Summary



2008 Safety Climate Survey Summary – Post intervention results



Conclusion

This education intervention study proposed to measure the impact on safety climate survey of a manikin-based, safety-focused provider education curriculum. Education interventions represent a practical solution for many patient safety improvement efforts; however, this methodology has not been definitively studied as a means to improve the safety culture or safety climate. Through this project, we sought to understand if hospital based safety-focused manikin-based training improves hospital safety climate in specific trained units or job descriptions, and if changes across an entire organization can be detected as result of "contamination." This effort also sought to identify the impact in specific professional groups (e.g., nurses, physicians, and respiratory therapists). The unique aspects of the proposed project included the application of high-fidelity simulation-based training to providers in high-risk clinical environments, in a rural community hospital setting. Provision of technology enhanced advanced training in this setting has the potential to improve patient safety through the demonstrated improved provider performance parameters associated with this training in other settings[7]. As the military medical community expands the use of simulation-based training for medics and other personnel increased understanding of the most effective application of simulation methodology is required. This research effort will inform the military simulation effort regarding the impact of crisis team training on health care facility compliance with accreditation requirements, appropriate provider populations for training, and methods of maximizing improvements in patient safety across organizational structures. This education intervention research demonstrated the feasibility of introducing high fidelity manikin based simulation training in a rural hospital. Furthermore, the introduction of this capability and specific crisis team training was associated with a year on year improvement in the hospital safety climate, as measured by a validated survey instrument. We are unable to show a definitive cause and effect relationship between the introduction of simulation based training and education, but are hopeful that this program contributed to provider perceptions that individuals are more open to organizational and personal practice changes that support improved patient safety, and that similar changes are propagated throughout an organization. Future studies are indicated based on the year on year findings of this study. Efforts to isolate training effects from other organizational changes will prove challenging in health care facilities, due to continuous process improvement programs which make organizational research challenging. Isolation of specific training elements, processes, and leadership related factors may allow tailoring of programs to accomplish specific goals, including improvement in the safety climate.

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Ref Type: Report

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Ref Type: Report

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Ref Type: Report

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APPENDICES

SIMCRITTER
ANNUAL REPORT 2008

APPENDIX
A-1

Statement of Work

Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER)
Year 1: CART Team Training

High-fidelity human patient simulator (Manikin)-based training has been effectively utilized in standardized hospital crisis team training, anesthesia training, and other patient safety related clinical areas. This study proposes to measure the impact of a novel educational intervention — a manikin-based, safety-focused provider education curriculum — on safety culture in a rural hospital emergency response team.

Task 1: Provide train the trainer CTT curriculum for HMC staff research program CTT instructors

Task 2: Procure install and verify function of equipment for simulation based training at Hilo Medical Center

Task 3: Prepare and obtain Local (HHSC) and 2nd tier (MRMC HSSRB) IRB review and approval

Task 4: Recruit subjects:

a. Prepare recruitment material
b. Recruit 45 Hospital Code Team Members to participate in Standardized Crisis Team Training.

Task 5: Prepare for training:

a. Assemble six teams of 5-8 individuals to participate, in simulator-based CTT training.
b. Prepare training materials, training area, and technical infrastructure
c. Collate existing baseline Safety Climate Survey results

Task 6: Conduct training:

a. Conduct training over a four week interval, in multiple sessions utilizing identical trained instructors and curriculum

Task 7: Administer/retrieve surveys:

a. Subjects complete Safety Climate Survey (SCSu) 8-12 weeks following completion of all training sessions
b. All hospital personnel (~300 persons) simultaneously complete Safety Climate Survey
c. Obtain (retrieve) historical hospital staff SCSu & SCSu score results, collected on two previous occasions

Task 8: Format, analyze, and interpret data

a. Input and format all data into database
b. Analyze data for the following:
    - Comparison of safety climate survey scores in identified cohorts

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- Sub-group analysis of hospital unit and discipline specific cohorts

Task 9: Prepare and complete progress and final reports

a. MRMC quarterly, annual, and final reports
b. Scientific meeting presentations
c. Prepare and submit manuscripts for peer reviewed publication

SIMCRITTER
ANNUAL REPORT 2008

APPENDIX
A-2

Hawaii Pacific Health

Institutional Review Board
1100 Ward Avenue, Suite 1045 • Honolulu, Hawaii 96814 • Phone: (808) 522-4583 • Fax: (808) 522-4335

July 15, 2008

Exempt Research Approval

Arthur Sampaga, Jr., RN, BSN, CCRN
Hilo Medical Center
1190 Waianuenue Avenue
Hilo, HI 96720

RE: **RP #08-009-2-HHS1 EXEMPT**
Project Title: Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER).

Dear Dr. Sampaga, Jr.:

The Hawaii Pacific Health Institutional Review Board (IRB) is in receipt of your IRB Application, Protocol (dated 2/29/2008), Revised Protocol (dated 5/22/2008), Grant Application, AIBS Mail Review to the USAMRMC, Safety Climate Survey, Recruitment flyer, and Participant Information Sheet.

Your research protocol was reviewed by the IRB via expedited review on July 15, 2008 and found to meet the criteria for exemption from Department of Health and Human Services regulations (DHHS), under the Code of Federal Regulations (CFR) Title 45 Part 46.101(b)(2).

As this research is exempt from DHHS regulations, you will not be required to submit continuing review reports for as long as your research protocol remains unchanged. Any changes to the research or data collection must be submitted to the IRB for review and approval prior to implementation.

Please inform us when your research is complete so that we may close our files.

If you have any questions, please contact Nina Miyata at 808.522.4581.

Sincerely,

David T. Horio, MD.

David T. Horio, MD
Chair, Institutional Review Board

DH:nm

Enclosures: Safety Climate Survey, Recruitment flyer, and Participant Information Flyer

cc: Benjamin Berg, MD

The Hawaii Pacific Health Institutional Review Board (IRB) operates in compliance with all applicable federal laws and regulations including but not limited to FDA regulations as described in 21 CFR parts 50 and 56, DHHS regulations as described in 45 CFR 46, guidelines resulting from the International Conference of Harmonization (ICH), the Common Rule as appropriate and operates in accordance with GCP guidelines and any applicable laws and regulations. In addition, the IRB operates in compliance with the portions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA Privacy Rule) that apply to research, as described in 45 CFR Parts 160 and 164.

Hilo Medical Center
We Care for Our Community

Safety Climate Survey

Deposit in any suggestion or event box, or hold in half and send to QM Dept. Thank you!

Date:

Please answer the following items with respect to your specific unit or clinical area.
Choose your responses using the scale below:

	A Disagree Strongly	B Disagree Slightly	C Neutral	D Agree Slightly	E Agree Strongly	X N/A
1. The culture of this clinical area makes it easy to learn from the mistakes of others.						
2. Medial errors are handled appropriately in this clinical area.						
3. The senior leaders in my hospital listen to me and care about my concerns.						
4. The physicians and nurse leaders in my areas listen to me and care about my concerns.						
5. Leadership is driving us to a safety-centered institution.						
6. My suggestions about safety would be acted upon if I expressed them to management.						
7. Management/leadership does not knowingly compromise safety concerns for my productivity.						
8. I am encouraged by my colleagues to report any safety concerns I may have.						
9. I know the proper channels to direct questions regarding patient safety.						
10. I receive appropriate feedback regarding my performance.						
11. I would feel safe being treated here as a patient.						
12. Briefing personnel before the start of a shift (i.e. to plan for possible contingencies) is an important part of safety.						
13. Briefings are common here.						
14. I am satisfied with the availability of clinical leadership (please respond to all three)						
Physician						
Nursing						
Pharmacy						
15. This institution is doing more for patient safety now, than it did one year ago.						
16. I believe that the most adverse events occur as a result of multiple system failures, and are not to one individuals actions.						
17. The personnel in this clinical area take responsibility for patient safety.						
18. Personnel frequently disregard rules or guidelines that are established for this clinical area.						

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Approved as to Form
Applied 1 5 2008 Expires Exempt

19. Patient safety is constantly reinforced as the priority in this clinical area.							

Have you ever completed this survey before?
☐Yes ☐No ☐Don't know

Job Position: (mark only one)
☐ Attending / Staff Physician
☐ Physician in training
☐ Pharmacist
☐ Technician
☐ Staff Nurse
☐ Nurse Manager/Charge Nurse
☐ Respiratory Therapist
☐ Physical, Occupational, or Speech Therapist
☐ Dietician
☐ Support Associate
☐ Administrator
☐Other

Experience in Position:
☐< 6 months ☐6 to 11 months ☐1 to 2 years ☐3 to 7 years
☐8 to 12 years ☐13 to 20 years ☐ 21 years or over

Experience in Specialty
☐< 6 months ☐6 to 11 months ☐1 to 2 years ☐3 to 7 years
☐8 to 12 years ☐13 to 20 years ☐ 21 years or over

Experience in Organization
☐< 6 months ☐6 to 11 months ☐1 to 2 years ☐3 to 7 years
☐8 to 12 years ☐13 to 20 years ☐ 21 years or over

Age
☐<30 ☐30 to 34 ☐35 to 39 ☐40 to 44 ☐ 45 or older

I am a ☐Cardiac Arrest Team Member ☐I Emergency department worker ☐Operating room staff ☐Nursing Student

HAWAII PACIFIC HEALTH - IRB
Approved as to Form
Approved 1 5 2008 Expires Exempt

RESEARCH STUDY: VOLUNTEERS NEEDED

You are invited to participate in a research study entitled:

Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER)

Location of Study: *Hilo Medical Center*

Principal Investigator: *Arthur Sampaga, RN*

Study Description: *This study is an educational intervention study. You will be participating in an educational program that is offered by Hilo Medical Center to the cardiac Arrest Team Members. The educational program is a Crisis Team Training program that is conducted using manikins that simulate human cardiac arrest and other medical conditions. This course is taught regularly at the University of Hawaii John A Burns School of Medicine and at the University of Pittsburgh Medical Center. The course focuses on communication and teamwork skills. Video recording and debriefing of the teamwork exercises is part of the program. When you are finished with the course you will take the regularly scheduled annual Hospital Safety Climate Survey. The research project will compare the safety climate survey results from last year to the results from the current year to determine if the crisis Team Training had an effect on the results. The research program will not identify you by name in any research reports or data. Video files are utilized only during the educational program. Video files are not used for research analysis. Video recordings will be managed according to the hospital training standard operating procedure.*

- *You will not be reimbursed for participation*
- *Participation is entirely voluntary and you may decline to participate at any time for any reason.*

Eligibility:

Aged 18 years and older

English speaking

Agree to participate in the study

Normal vision (self reported normal or corrected to normal with glasses or contact lenses)

Normal hearing (self reported normal or corrected to normal with hearing aid)

Hospital Code Team Members from the Hilo Medical Center

(Note: Individuals may not participate if they are pregnant).

Enrollment Information: *Contact for this study:Arthur Sampaga, RN, Phone: 808- 933-3151; e-mail: samapaga@hhsc.org*

HAWAII PACIFIC HEALTH - IRB
Approved as to Form
JUL 15 2008
Approved
Expires Exempt

Simulation Crisis Team Training Effect on Rural Hospital Safety Climate
(SimCRITTER)

Information Sheet

YOU MAY NOT PARTICIPATE IN THIS PROGRAM IF YOU ARE UNDER THE AGE OF 18

You are invited to participate in an educational training program to learn teamwork skills using a simulator manikin. You will learn skills including communication and organization for team work enhancement. The hospital quality assurance department administers the annual Safety Climate Survey, which you have taken previously. The next survey will be administered sometime after you take the team training program. The hospital will compare Safety Climate Survey results of the entire group of participants in the teamwork skills course to the results of the rest of the hospital. No personal information will be collected, or maintained for the purposes of this research project.

- Participation is entirely voluntary.
- No extra time is required for your participation
- Your name and contact information is not required.
- Under no circumstances will personal information be given to third parties, and participants will not be contacted again regarding this study.

INVESTIGATORS:
Arthur Sampaga RN
Benjamin W Berg MD.
Victoria Garshnek PhD

CONTACT INFORMATION:

Arthur Sampaga Phone #: 933-0779 FAX #: (808) 974-4647 Email: asampaga@hhsc.org

ADDRESS: Hilo Medical Center
1190 Waianuenue Avenue, Hilo, HI 96720

If you have any questions about your rights as a research subject, you may call the Hawaii Pacific Health Institutional Review Board at 808-522-4544 or write to them at 1100 Ward Ave., Suite 1045, Honolulu, HI 96814 (email:ninam@kapiolani.org)

HAWAII PACIFIC HEALTH - IRB
Approved as to Form
Approved JUL 15 2008 Expires

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Institutional Review Board (IRB)/Independent Ethics Committee (IEC) Authorization Agreement

Name of Institution or Organization Providing IRB Review (Institution/Organization A):
Hawaii Pacific Health Institutional Review Board (HPH-IRB)
IRB Registration #: 00004695 Federalwide Assurance (FWA) #: 00000122

Name of Institution Relying on the Designated IRB (Institution B):
University Clinical Education and Research Associates (UCERA)
FWA #: 00012612

The Officials signing below agree that UCERA may rely on the designated IRB for review and continuing oversight of its human subjects research described below: (*check one*)

(___) This agreement applies to all human subjects research covered by Institution B's FWA.

(_X_) This agreement is limited to the following specific protocol(s):

Name of Research Project: Simulation crisis team training effect of rural hospital safety climate (SimCriTTER)
Name of Principal Investigator: Arthur Sampaga, RN
Sponsor or Funding Agency: USA Med Research Acquisition Activity
Award Number, if any: W81XWH-07-1-0621
(___) Other (*describe*):

The review performed by the designated IRB will meet the human subject protection requirements of Institution B's OHRP-approved FWA. The IRB at Institution/Organization A will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the Terms of its OHRP-approved FWA. This document must be kept on file by both parties and provided to OHRP upon request.

Signature of Signatory Official – HPH-IRB:

_____ Date: 8/11/08

Print Full Name: Raymond P. Vara, Jr. Institutional Title: Exec. Vice President & CEO, Operations

NOTE: The IRB of Institution A must be designated on the OHRP-approved FWA for Institution B.

Signature of Signatory Official – UCERA:

_____ Date: 8/13/08

Print Full Name: Lawrence Burgess, M.D. Institutional Title: Director of Govt. Affairs

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APPENDIX
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DEPARTMENT OF THE ARMY
US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND
504 SCOTT STREET
FORT DETRICK, MD 21702-5012

REPLY TO
ATTENTION OF

MCMR-RP 20 August 2008

MEMORANDUM FOR THE RECORD

SUBJECT: Determination for the Proposal, "Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER)," Submitted by Arthur Sampaga, Jr., RN, Hilo Medical Center, Hilo, HI, Proposal Log Number 06264002, Award Number W81XWH-07-1-0621, HRPO Log Number A-14394

1. The subject proposal and supporting documents received on 19 August 2008 in the U.S. Army Medical Research and Materiel Command (USAMRMC), Office of Research Protections (ORP), Human Research Protection Office (HRPO) have been reviewed for applicability of human subjects protection regulations.

2. The research involves participation in a technology-based educational activity using a training course regularly taught at two medical centers. Participants will then complete a regularly-scheduled Hospital Safety Climate Survey, and results of this survey will be compared with safety climate surveys from previous years to determine if the training had an effect on survey results.

3. In accordance with 32 CFR 219.101(b)(1), the HRPO determined that the proposal is exempt as it is research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

4. The project may proceed with no further requirement for review by the HRPO. The HRPO protocol file will be closed. If additional projects under this award involve non-exempt research, the HRPO protocol files for these projects will remain open.

5. In the event that there is a change to the subject research or statement of work (SOW), the Principal Investigator must notify the Contracting Officer's Representative (COR)/Grant Officer's Representative (GOR) and send a description of the change to the HRPO at hsrrb@amedd.army.mil referencing both the proposal log number and the

SUBJECT: Determination for the Proposal, "Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER)," Submitted by Arthur Sampaga, Jr., RN, Hilo Medical Center, Hilo, HI, Proposal Log Number 06264002, Award Number W81XWH-07-1-0621, HRPO Log Number A-14394

HRPO log number listed in the “Subject” line above. The HRPO will re-open the protocol file if necessary.

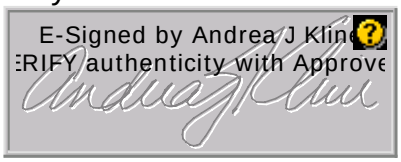
Any changes to the SOW that the COR/GOR determines could affect the exemption status of the project must be reviewed by the HRPO prior to approval by the Contracting Officer/Grants Officer.

6. Do not construe this correspondence as approval for any contract funding. Only the Contracting Officer/Grants Officer can authorize expenditure of funds. It is recommended that you contact the appropriate contract specialist or contracting officer regarding the expenditure of funds for your project.

7. Further information regarding the award can be obtained by contacting the assigned Contract Specialist, Ms. Wanda King, at 301-619-2376.

8. Further information regarding technical oversight can be obtained by contacting the assigned COR/GOR, Dr. Stanley Saiki, Jr., at 808-433-2376.

9. Further information regarding this review may be obtained by contacting Ms. Catherine Smith, Human Subjects Protection Administrative Team Leader/Exemption Coordinator at catherine.smith@amedd.army.mil.



ANDREA J. KLINE, MS, CIP
Chief, Research Administrative Support
Human Research Protection Office
Office of Research Protections

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APPENDIX
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AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
S	1 | 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
P00003	02-Sep-2008	SEE SCHEDULE	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
USA MED RESEARCH ACQ ACTIVITY 820 CHANDLER ST FORT DETRICK MD 21702-5014	W81XWH	USA MED RESEARCH ACQ ACTIVITY ATTN: WANDA KING 301-619-2376 WANDA.KING@AMEDD.ARMY.MIL FORT DETRICK MD 21702-5014	W81XWH

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
HAWAII HEALTH SYSTEMS FOUNDATION 3675 KILAUEA AVENUE HONOLULU HI 96816-2333		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. W81XWH-07-1-0621
	X	10B. DATED (SEE ITEM 13) 08-Aug-2007
CODE 33GS2	FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

☐ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

☐ C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

X D. OTHER (Specify type of modification and authority)
DoDGAR 32.25(d)(3)(ii) & USAMRAA General Terms & Conditions 4.c.

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Modification Control Number: cmiles086404

The purpose of this modification is to extend the end date of the period of performance at no additional cost to the Government, in accordance with the recipient's e-mail request dated 18 July 2008, which is incorporated into this mod by reference. All other terms and conditions are unchanged.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	CHERYL R. MILES / CONTRACTING OFFICER TEL: 301-619-7148 EMAIL: cheryl.miles1@us.army.mil

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY Cheryl R. Miles (Signature of Contracting Officer)	30-Aug-2008

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION 00010 - SOLICITATION CONTRACT FORM

DELIVERIES AND PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 10-AUG-2007 TO 09-SEP-2008	N/A	USA MED RESEARCH AND MATERIEL COM JUANITA LIVINGSTON 504 SCOTT STREET FORT DETRICK MD 21702-5012 FOB: Destination	W23RYX

To:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 10-AUG-2007 TO 09-NOV-2008	N/A	USA MED RESEARCH AND MATERIEL COM JUANITA LIVINGSTON 504 SCOTT STREET FORT DETRICK MD 21702-5012 FOB: Destination	W23RYX

The following have been modified:
PI NAME & RESEARCH TITLE

RESEARCH TITLE: "SIMULATION CRISIS TEAM TRAINING EFFECT ON RURAL HOSPITAL SAFETY CLIMATE (SIMCRITTER)"

PRINCIPAL INVESTIGATOR: Arthur Sampaga Jr., asampaga@hhsc.org

BUSINESS OFFICE: BEN BERG, BWBERG@HAWAII.EDU

PERIOD OF PERFORMANCE: 10 AUGUST 2007 – 09 NOVEMBER 2008 (RESEARCH ENDS 09 OCTOBER 2008).

******* FUNDS MAY OR MAY NOT BE PROVIDED TO CONTINUE RESEARCH INTO YEAR 2 ********

(End of Summary of Changes)

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APPENDIX
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Safety Climate Survey

Organizations working to develop or improve a culture of safety need a reliable measure to monitor the success of their initiatives. Using this survey tool, an organization can gain information about the perceptions of front-line clinical staff about safety in their clinical area and management's commitment to safety. The survey also provides information about how perceptions vary across different departments and disciplines. As the team tests and implements changes to improve the culture, such as Safety Briefings and Patient Safety Leadership WalkRounds™, it can repeat this survey periodically to assess the impact of those changes.

This tool contains:

- Overview
- Instructions
- Survey Form

The Center of Excellence for Patient Safety Research and Practice
University of Texas
Austin, Texas, USA

Developed by:

J. Bryan Sexton, PhD
Post-Doctoral Fellow, Department of Psychology
University of Texas at Austin

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University of Texas at Houston Medical School

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Overview

Organizations working to develop or improve a culture of safety need a reliable measure to monitor the success of their initiatives. Using the Safety Climate Survey, an organization can gain information about the perceptions of front-line clinical staff about safety in their clinical area and management's commitment to safety. The survey also provides information about how perceptions vary across different departments and disciplines. As the team tests and implements changes to improve the culture, it can repeat this survey periodically to assess the impact of those changes.

A group of researchers led by Bryan Sexton and Robert Helmreich at the University of Texas developed this survey tool. It has been well tested by many hospitals in several countries, in both the United States and Europe. Organizations using this tool successfully first collect a baseline measurement and then re-survey periodically (semi-annually or annually) to assess the impact of changes they are making. Improvement in staff perceptions of the safety climate has been linked to decreases in actual errors, patient length of stay, and employee turnover.

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Instructions

Step 1: Select Units for Survey

When first using the Safety Climate Survey, you may want to survey the staff on just one or two pilot units, rather than the entire organization. This will help you learn how to use the survey, interpret the results, and test changes on a small scale first to see if they result in an improvement. Select pilot units that are already testing changes to improve patient safety, and measure the safety climate there over time to assess the impact of the changes.

Step 2: Identify Staff to Participate in the Survey

The safety climate in a patient care unit is affected by and experienced by everyone who works on that unit. This includes employees from various disciplines who may be frequently assigned to that unit, such as pharmacists, respiratory therapists, and dieticians. It also includes physicians who frequently care for patients on that unit, whether they are employees, members of a voluntary medical staff, or participants in teaching programs. All individuals who regularly work on or are assigned to the patient care unit should be included in the survey.

Here are some general guidelines for determining which staff members to include:

- Select staff members who regularly work at least 20 hours per week on that unit. Do not include staff members who work there only occasionally.
- Select staff members from other departments who are assigned either primarily to that unit or who are assigned there at least three days per week.
- Select physicians who treat, on average, at least three patients per week on the unit. If there are many physicians in this category, as may be the case on large units, consider including the 10 or 20 physicians who treat the most patients on the unit.
- Make sure all survey participants (staff and physicians) have worked in the unit for at least six weeks.

Step 3: Number and Track the Surveys

Print one survey form for each person to be surveyed. Preserving anonymity is essential with surveys, but it is helpful to number and group the surveys in order to compare responses between disciplines. Here are some suggestions for numbering the surveys:

- Develop a numbering system so you can track the results. You may want your tracking number to incorporate the month and year of the survey, which will be helpful in keeping data organized if you conduct the survey multiple times.
- Don't use codes that obviously identify the units or disciplines (e.g., "RN100" or "MD310"), as people may fear being identified.

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Example of numbering surveys:

ABC Hospital is conducting a safety climate survey on one patient care unit.

Using the criteria described in Step 2 above, the hospital determined that the unit required 120 surveys. The hospital is conducting the survey in January 2003, so the surveys are numbered sequentially as 0103-001 through 0103-120. The ranges of the surveys are as follows:

0103-001 through 0103-050	Nurses
0103-051 through 0103-065	Physicians
0103-066 through 0103-070	Pharmacists
0103-071 through 0103-075	Respiratory Therapists
0103-076 through 0103-080	Dieticians
0103-081 through 0103-090	Case Managers and Social Workers
0103-091 through 0103-115	Unit Clerks and Nursing Aides
0103-116 through 0103-120	Physical, Occupational, and Speech Therapists

If you use a numbering system with ranges like the ones above, don't write down anywhere which survey number corresponds with each staff member. That would eliminate anonymity and risk compromising the results. Just be sure to give each participant a survey from the range that corresponds to his or her job.

Step 4: Track Response Rates

A good response rate is essential for meaningful results. It is recommended that you have a response rate of at least 65 percent before analyzing and using the results. If you use a numbering system with ranges, you can see which disciplines have returned surveys. Explaining the survey's purpose and analysis methods before you distribute the surveys may help you achieve a high response rate.

Use the ranges from the numbering system to keep track of how many people in each job category return a survey. This will help ensure that the same numbers of people are re-surveyed in each category in the future (and will help you compensate for respondent attrition as people leave the organization). For example, if 12 physicians and three pharmacists respond to the first survey, you will want to get roughly the same number of responses from each in future surveys.

Note: If conducting the survey in more than one unit, the response rate must be at least 65 percent *for each individual unit*. In order to accurately assess safety climate in a unit, a significant number of personnel must respond. It is not recommended that response rates be aggregated.

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Step 5: Calculate Results

(Note: These steps are for manual calculation of results only and should not be followed if using the Safety Climate Calculation Spreadsheet as the calculations are incorporated into the file.)

You can calculate the Overall Mean, Safety Climate Mean, Safety Climate Score, and Percent of Respondents Reporting a Positive Safety Climate by following these steps:

Assign a numeric value to the response to each question (except for #18) as follows:

DISAGREE STRONGLY	= 1
DISAGREE SLIGHTLY	= 2
NEUTRAL	= 3
AGREE SLIGHTLY	= 4
AGREE STRONGLY	= 5
NOT APPLICABLE	No Score
No Response	No Score

Reverse the scoring for Question #18 only, due to the wording of the question, as follows:

DISAGREE STRONGLY	= 5
DISAGREE SLIGHTLY	= 4
NEUTRAL	= 3
AGREE SLIGHTLY	= 2
AGREE STRONGLY	= 1
NOT APPLICABLE	No Score
No Response	No Score

To calculate the Overall Mean:

1. Add the scores from each question answered.
2. Divide the total by the number of questions answered. If any questions were answered as "Not Applicable" or were left blank, do not count them in the denominator.
3. The result is the Overall Mean for that individual respondent and will be between 1 and 5.
4. Add the Overall Means from all surveys returned and divide by the number of respondents. This provides the Overall Mean for the group, which will also be between 1 and 5.

To calculate the Safety Climate Mean:

1. Add the numbers *only* from the following questions, if answered: Questions 1, 2, 3, 8, 9, 10, and 11.

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2. Divide the total by the number of these questions answered. If any of them were answered as "Not Applicable" or were left blank, do not count them in the denominator.

3. The result is the Safety Climate Mean for that individual respondent and will be between 1 and 5.

4. Add the Safety Climate Means from all surveys returned and divide by the number of respondents (exclude any respondents who did not answer all seven of these questions). This provides the Safety Climate Mean for the group, which will also be between 1 and 5.

To calculate the Safety Climate Scores:

1. Subtract 1 from the Safety Climate Mean on an individual survey.

2. Multiply the result by 25 to convert to a 100-point scale.

3. The result is the Safety Climate Score for that respondent, which will be between 1 and 100.

4. Calculate Safety Climate Scores for the rest of the surveys.

To calculate the Percent of Respondents Reporting a Positive Safety Climate:

1. Count the number of respondents with a Safety Climate Score of 75 or greater.

2. Divide by the total number of respondents.

3. The result is the Percent of Respondents Reporting a Positive Safety Climate.

Step 6: Monitor the Results Over Time

The two results that should be tracked over time are the Safety Climate Mean of all respondents, step (d) above, and the Percent of Respondents Reporting a Positive Safety Climate, step (f) above. The mean scores for individual questions can help you analyze the areas of your organization that need improvement. It may also be helpful to compare results across disciplines or from different units.

Step 7: Conduct Repeat Surveys

Remember that changing the climate of an organization takes a long time. Do not re-survey too frequently. Results don't change quickly. Moreover, if staff members are surveyed too often, they will become desensitized to the process and the results will be affected. A good plan might be to obtain a baseline safety climate measure, and then conduct follow-up surveys at 6 months and 12 months.

Permission to Use

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Safety Climate Survey

The Safety Climate Survey has been provided to IHI by the developers for unlimited use on the IHI website. Registered users of IHI.org may download the survey and associated tools for photocopying and distribution within their organizations without obtaining permission from IHI. Appropriate attribution to IHI and the survey developers should always be cited. These files may not be reproduced for sale.

Users who wish to modify the wording of survey questions prior to using the survey in their organizations are free to do so without obtaining permission from IHI. However, since the validity of the tool is based on the current questions, users who modify wording should be aware that the validity of the survey and the data collected cannot be guaranteed in such cases. The Excel survey calculation spreadsheet may not work properly and the benchmarking data should not be used for comparison if modifications are made.

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APPENDIX
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60 seconds Session 1	ORGANIZATION TASKS	Patient Care Tasks				Percentages	
Station	Team Member	Items	Task Completed	Another Team Member Completed Task	Who		
Airway Manager	0	Identify self				Yes	4
		Name tag				All	4
		Move Bed from wall	Y	Y		%	100%
		Stand in appropriate position	Y	Y			
		Count respiratory rate					
		Assess: is airway open	Y	Y			
		Open airway					
		Assist ventilation (Mouth to mask, or Bag-Mask)	Y	Y			
Airway Assistant	0	Identify self				Yes	1
		Name tag				All	1
		Obtain Airway Bag				%	100%
		Stand in appropriate position	Y	Y			
		Give mask/bag to airway manager					
		Set up oxygen					
Bedside assistant	0	Verify Pads attached to defibrillator				Yes	0
		Name tag				All	2
		Stand in appropriate position				%	0%
		Verify EKG on defibrillator	N	N			
		Call for Condition C or A					
		Obtain backboard from cart	n	N			
		Assess pulse presence and rate					
		Assess respiratory rate					
Crash cart manager	0	Identify self				Yes	2
		Stand in appropriate position				All	2
		Hand ID stickers to Data Manager	y	Y		%	100%
		Hand defib pads to Circulation					
		Hand backboard to bedside assistant					
		Turn on defibrillator	y	Y			
		Set defibrillator to defibrillate					
		Set defibrillator leads to Pads					
Treatment leader	0	Identify self				Yes	0
		Stand in appropriate position	n	N		All	3
		Assure team assumed all roles				%	0%
		Request patient respiratory/circulatory status	n	N			
		Begin AMPLE	n	N			
Data manager	0	Identify self				Yes	0
		Stand in appropriate position				All	0
		Obtain record sheet				%	0%
		Hand ID stickers to responders					
		Begin to obtain AMPLE					
Procedure MD	0	Identify self	y	Y		Yes	5
		Stand in appropriate position	y	Y		All	5
		Check Pulse	y	Y		%	100%
		Check IV patency	y	Y			
		Check IV fluid	y	Y			
Circulation manager	0	Identify self				Yes	3
		Stand in appropriate position	y	Y		All	3
		Check pulse				%	100%
		Initiate chest compressions	y	Y			
		Confirms adequacy of compressions	y	Y			
		Attach defib pads					
Aide	0	Identify self				Yes	0
						All	0
						%	0%

	By Role	By Team
ALL:	**75%**	**75%**
60 second Task Completed positives:	15	15
60 second total spots	20	20
Organization Tasks	**89%**	**89%**
60 second Task Completed Positive	8	8
60 second total spots	9	9
Theraputic Tasks	**64%**	**64%**
60 second Task Completed positives:	7	7
60 second total spots	11	11

3 minutes Session 1	ORGANIZATION TASKS	Patient Care Tasks				Percentages		
Station	Team Member	Items	Task Completed	Another Team Member Completed Task	Who		3 Min	All
Airway Manager	0	Assess oxygenation/ventilation				Yes	0	0
		Consider need for intubation	N	N		All	1	1
		Check Pupils				%	0%	0%
		Communicate findings to treatment leader						
Airway Assistant	0	Set up pulse ox				Yes	1	1
		Check pulse ox reading				All	1	1
		Report Pulse ox to Airway manager				%	100%	100%
		Cricoid pressure						
		Learn airway plan from Airway Manager	Y	Y				
		Assemble needed equipment						
Bedside Assistant	0	Place back board				Yes	0	0
		Check vital signs				All	0	0
		Check pulse ox		Y		%	0%	0%
		Report vital signs to data manager						
		Verify Pads attached to defibrillator						
		Adjust IV rate						
		Deliver medications						
Crash cart manager	0	Verify EKG on defibrillator				Yes	1	1
		Report EKG to Treatment leader				All	1	1
		Prepare meds accurately	Y	Y		%	100%	100%
		Deliver meds to bedside assistant						
		Defibrillate/cardiovert/pace						
Treatment leader	0	Acquire history: AMPLE				Yes	0	0
		Make diagnostic assessment				All	0	0
		Determine treatment				%	0%	0%
		Give order to treat accurately						
		Definitive intervention						
Data manager	0	Record team members				Yes	0	0
		Acquire AMPLE				All	0	0
		Acquire chart, essential data				%	0%	0%
		Prompt VS data from Bedside asst						
		Prompt respiratory status from airway manager						
		Document Treatments						
Procedure MD	0	Obtain IV access				Yes	0	0
		Obtain ABG				All	0	0
		Check pulse/adequacy of circulation				%	0%	0%
		Report quality of circulation to circulation manager						
		Report quality of circulation to treatment leader						
Circulation manager	0	Initiate chest compressions				Yes	0	0
		Assess pulse				All	0	0
Aide	0	Get chart				%	0%	0%
		Deliver chart to Data manager						
						Yes	0	0
Data Probes	Probe assessed	Probe transmitted to target		Probe received by target	Totals	All	0	0
					0	%	0%	0%
					0			
Scenario Outcome				Probe Totals	0			

	By Role	By Team
All Tasks	**67%**	**75%**
3 minute Task Completed positives:	2	3
3 minute total spots	3	4
Organizational Tasks	**100%**	**100%**
3 minute Task Completed positives:	1	1
3 minute total spots	1	1
Theraputic Tasks	**50%**	**67%**
3 minute Task Completed positives:	1	2
3 minute total spots	2	3

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Job Description	Overall Mean	Safety Climate Mean	Safety Climate Score Mean	Sample Size	% Total
Attending / Staff Physician	3.81	3.93	73.33	5	1.37%
Physician In Training				0	0.00%
Pharmacist				0	0.00%
Respiratory Therapist	3.80	4.02	75.40	9	2.47%
PT / OT / Speech	3.84	3.97	74.21	12	3.29%
Staff Nurse	3.71	3.81	70.21	164	44.93%
Other	3.72	3.73	69.03	116	31.78%
Support Associate	3.95	4.01	75.25	13	3.56%
Nurse Manager / Charge Nurse	4.16	4.13	78.17	18	4.93%
Administrator	4.00	3.86	71.43	3	0.82%
Technician	4.03	4.17	79.37	9	2.47%
Dietician	4.75	5.00	100.00	1	0.27%
Experience in Position					
21 or more years	3.66	3.71	68.14	51	13.97%
3 - 7 years	3.84	3.86	71.44	85	23.29%
8 - 12 years	3.59	3.71	68.73	53	14.52%
1 - 2 years	3.96	4.04	76.10	42	11.51%
13- 20 years	3.66	3.72	68.40	74	20.27%
Less than 6 months	4.21	4.20	79.94	19	5.21%
6 - 11 months	4.02	4.06	76.56	13	3.56%
Experience in Specialty					
1 - 2 years	3.87	3.95	73.86	39	10.68%
6 - 11 months	4.09	4.09	77.14	6	1.64%
3 - 7 years	3.87	3.89	72.16	79	21.64%
13- 20 years	3.61	3.67	67.08	73	20.00%
21 or more years	3.67	3.66	66.90	57	15.62%
8 - 12 years	3.82	4.03	75.83	53	14.52%
Less than 6 months	4.32	4.38	84.44	15	4.11%
Experience in Organization					
13- 20 years	3.67	3.73	68.50	71	19.45%
8 - 12 years	3.56	3.65	67.11	57	15.62%
Less than 6 months	4.22	4.15	78.84	17	4.66%
21 or more years	3.95	3.99	74.73	44	12.05%
1 - 2 years	3.86	3.95	73.86	49	13.42%
3 - 7 years	3.80	3.90	72.54	69	18.90%

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List of Personnel Receiving Pay from the Research Effort

- Lori Shigeishi-Wong, Simulation Trainer (Q1-Q4)
- Caroline Teruya, Program Analyst II (Q1 only)

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APPENDIX
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Hawaii Pacific Health

Institutional Review Board
1100 Ward Avenue, Suite 1045 • Honolulu, Hawaii 96814 • Phone: (808) 522-4583 • Fax: (808) 522-4335

May 6, 2009

Exempt Research Approval

Arthur Sampaga, Jr., RN, BSN, CCRN
Hilo Medical Center
1190 Waianuenue Avenue
Hilo, HI 96720

RE: **RP #08-009-2-HHS1 EXEMPT**
Project Title: Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER).

Dear Dr. Sampaga, Jr.:

The Hawaii Pacific Health Institutional Review Board (IRB) is in receipt of your email April 29, 2009 detailing the exact changes to your protocol. You indicated that you have changed your protocol since it was originally submitted to the IRB by deleting Tasks 4, 5, and 6 and only conducting the survey portion.

The change to your research protocol was reviewed by the IRB via expedited review on May 6, 2009, and found to still meet the criteria for exemption from Department of Health and Human Services regulations (DHHS), under the Code of Federal Regulations (CFR) Title 45 Part 46.101(b)(2).

There has been no IRB violation but there was a failure to inform us of changes to the protocol. Any future changes to the protocol need to be submitted to the IRB prior to implementing the change.

As this research is exempt from DHHS regulations, you will not be required to submit continuing review reports for as long as your research protocol remains unchanged. Any changes to the research or data collection must be submitted to the IRB for review and approval prior to implementation.

Please inform us when your research is complete so that we may close our files.

If you have any questions, please contact the IRB at (808) 522-4583.

Sincerely,

David T. Horio, MD
Chair, Institutional Review Board

DH:lk
cc: Benjamin Berg, MD

The Hawaii Pacific Health Institutional Review Board (IRB) operates in compliance with all applicable federal laws and regulations including but not limited to FDA regulations as described in 21 CFR parts 50 and 56, DHHS regulations as described in 45 CFR 46, guidelines resulting from the International Conference of Harmonization (ICH), the Common Rule as appropriate and operates in accordance with GCP guidelines and any applicable laws and regulations. In addition, the IRB operates in compliance with the portions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA Privacy Rule) that apply to research, as described in 45 CFR Parts 160 and 164.

Determining Whether Human Research is Exempt from the Regulations

PROTOCOL NUMBER: RP #08-009-2-HHS1 EXEMPT

PRINCIPAL INVESTIGATOR: Arthur Sampaga, Jr., RN, BS, CCRN

TITLE OF STUDY: Simulation Crisis Team Training Effect on Rural Hospital Safety Climate (SimCriTTER)

KEY: Solid box: All items in the box must be true | Dotted box: One item in the box must be true

- **The only involvement of human subjects will be in one or more of the following categories:** (Check all of the following that are true)

☐ **Category 1** (All of the following are true):

☐ Research conducted in established or commonly accepted educational settings
☐ The research involves normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
For the purposes of the above analysis, consider the following issues:
- The research and goals:
- The procedures:
- Where will this research be conducted?
- Why is this a commonly accepted educational setting?
- Why is this normal educational practice?

☐ The research is **NOT** subject to FDA regulation (See Determining Whether a Proposed Activity is Human Research According to DHHS or FDA Regulatory Definitions)
☐ The research does **NOT** involve prisoners as participants
☐ The research meets the organization's ethical standards governing the conduct of research

Does this research involve educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior? **If yes**, complete section for Category 2 below.

☒ **Category 2** (All of the following are true):

☒ The research involves the use of one or more of the following:
☐ Educational tests (cognitive, diagnostic, aptitude, achievement)
☒ Survey procedures
☐ Interview procedures
☐ Observation of public behavior

☐ When the research involves children as participants, the procedures are limited to:
N/A
☐ Educational tests (cognitive, diagnostic, aptitude, achievement)
☐ Observation of public behavior where the investigator(s) will **NOT** participate in the activities being observed

☒ Information obtained is recorded in such a manner that either:
☒ Participants **CANNOT** be identified, directly or through identifiers linked to the participants.
☐ Both of the following are true:
☐ Participants **CAN** be identified, directly or through identifiers linked to the participants.
☐ Any disclosure of the participants' responses outside the research could **NOT** reasonably place them at risk of criminal or civil liability or be damaging to the their financial standing, employability, or reputation.

☒ The research is **NOT** subject to FDA regulation (See Determining Whether a Proposed Activity is Human Research According to DHHS or FDA Regulatory Definitions)
☒ The research does **NOT** involve prisoners as participants
☒ The research meets the organizations ethical standards governing the conduct of research

☐ **Category 3** (All of the following are true):

☐ The research is **NOT** exempt under Category 2 above
☐ The research involves the use of one or more of the following
☐ Educational tests (cognitive, diagnostic, aptitude, achievement)

David T. Howe, MD

- ☐ Survey procedures
- ☐ Interview procedures
- ☐ Observation of public behavior

☐ Either of the following is true

- ☐ The participants are elected or appointed public officials or candidates for public office
- ☐ Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter

☐ The research is **NOT** subject to FDA regulation (See Determining Whether a Proposed Activity is Human Research According to DHHS or FDA Regulatory Definitions)

☐ The research does **NOT** involve prisoners as participants

☐ The research meets the organizations ethical standards governing the conduct of research

☐ **Category 4** (All of the following are true):

☐ The research involves the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens (The reviewed materials currently exist and are **NOT** prospectively collected)

☐ At least one of the following is true:

- ☐ These sources are publicly available
- ☐ Information[1] is recorded by the investigator in such a manner that both of the following are true:
  - ☐ Participants cannot be directly identified
  - ☐ Participants cannot be identified through identifiers linked to them

[1] *The investigator should describe what information will be recorded and how it will be recorded.*

☐ The research is **NOT** subject to FDA regulation (See Determining Whether a Proposed Activity is Human Research According to DHHS or FDA Regulatory Definitions)

☐ The research does **NOT** involve prisoners as participants

☐ The research meets the organizations ethical standards governing the conduct of research

☐ **Category 5**[2] (All of the following are true):

☐ The project is a research or demonstration project

☐ The project is conducted by or subject to the approval of Department or Agency heads

☐ The project is designed to study, evaluate, or otherwise examine: (i) Public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs

☐ The program under study delivers a public benefit (e.g., financial or medical benefits as provided under the Social Security Act) or service (e.g., social, supportive, or nutrition services as provided under the Older Americans Act)

☐ The project is conducted pursuant to specific federal statutory authority

☐ There is no statutory requirement that an IRB review the project

☐ The project does not involve significant physical invasions or intrusions upon the privacy of participants

☐ The research is **NOT** subject to FDA regulation (See Determining Whether a Proposed Activity is Human Research According to DHHS or FDA Regulatory Definitions)

☐ The research does **NOT** involve prisoners as participants

☐ The research meets the organizations ethical standards governing the conduct of research (e.g., acceptable risk-benefit relationship, equitable selection, informed consent, protections of privacy, maintenance of confidentiality, and protections for vulnerable populations)

[2] *According to OHRP, this exemption is most appropriately invoked with authorization or concurrence by the funding agency.*

☐ **Category 6** (All of the following are true):

☐ The research involves a taste and food quality evaluation and consumer acceptance studies

☐ One of the following is true:

- ☐ Wholesome foods without additives will be consumed
- ☐ A food will be consumed that contains a food ingredient and both of the following are true:
  - ☐ The food ingredient is at or below the level to be safe
  - ☐ The food ingredient is for a use found to be safe
- ☐ A food will be consumed that contains an agricultural chemical or environmental contaminant and one of the

following is true:

- ☐ The agricultural chemical or environmental contaminant is at or below the level found to be safe by the Food and Drug Administration
- ☐ The agricultural chemical or environmental contaminant is at or below the level approved by the Environmental Protection Agency
- ☐ The agricultural chemical or environmental contaminant is at or below the level approved by the Food Safety and Inspection Service of the U.S. Department of Agriculture

☐ The research does **NOT** involve prisoners as participants

Exempt: ☒

NOT exempt: ☐

David T Brown — Name

5/6/09 — Dated

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Debrief 1: Roles
Section 1 Focus: Scenario Fidelity

Teaching Points

- It is important to use a simulator for training/learning because you must train as you play, play as you train
- We believe that unless it seems "real" it is unlikely to effect performance behavior

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Trainees complete Perception of Teamwork in AutoDebrief tool
- ☐ Review Questions with Participants
- ☐ Teaching Points were made

Questions for Participants

- ☐ Did the scenario feel real?
  - Elicit opinions and explore why they think / do not think the scenario felt real.
- ☐ Was your internal feeling similar to what you feel during a real crisis situation?
  - Elicit opinions and explore why.
- ☐ Was your behavior similar to what you do during a real crisis situation?
  - Elicit opinions and explore why.

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Debrief 1: Roles
Section 2 Focus: Perception of Organizational Performance

Teaching Points

- To avoid chaos, devote time and effort to organization
- Choosing roles aids in organization
- Best team performance requires not just ABC (Airway, Breathing, Circulation), but OABC (Organization, Airway, Breathing, Circulation)

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Display results of Perception of Team Work from Auto Debrief Tool
- ☐ Review Questions with Participants
- ☐ Teaching Points were made

Questions for Participants

- ☐ Was the team response chaotic or organized?
  - Elicit opinions and rationale.
- ☐ What would improve your organization?
  - Elicit: *Leadership, *knowing your own role, *Planning, *Practice, *Communication.
- ☐ What rules whould you make to improve team organization?
  - Elicit: some roles, list tasks and priorities, sense of division of labor.
- ☐ What tasks should be accomplished within the first 60 seconds of a crisis response?
  - Elicit as many tasks as possible.
- ☐ Which of those tasks are organizational tasks and which are patient care tasks?
  - Analyze priority trainees have placed on organization
  - Often participants omit organization. Explore what organizational tasks should be done.
- ☐ Which is a higher priority during the first 60 seconds?
  - Explore rationale for prioritizing organizational tasks over treatment tasks
  - Discuss OABC.

Lecture | Roles & Goals | Video | Score Sheet | Graphs | **Continue**

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Debrief 1: Roles
Section 3 Focus: Role Organization

Teaching Points

- Choosing roles will help implement OABC.
- Failure to assume role will lead to chaos and failure.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Have students identify role played in scenario
- ☐ Review video to demonstrate role fullfullment
- ☐ Teaching Points were made

Questions for Participants

- ☐ Who was in each role?
  - Instruct trainees to rapidly raise their hands when they hear you call out the role designation they played. Capture on spreadsheet tool.
- ☐ How many roles were unfilled?
- ☐ How many roles had more than one person filling in?
- ☐ What happens when more than one person or no one is filling a role?
  - Elicit *Redundancy *Inefficiency *Role confusion *Team Organization Confusion *Errors.

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Debrief 1: Roles
Section 4 Focus: Analysis of Organizational and Treatment Performance (first minute)

Teaching Points

- Completing **Organizational** tasks promotes completing **Therapeutic** tasks
- The crisis starts when the patient gets sick, not when the team arrives.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Review the first 60 seconds of the video	☐ Ellicit all the assessment, treatment and organizational tasks that should be completed in the first 60 seconds.	☐ Open CTT spreadsheet and begin questions below.	☐ Complete tasks list for both **Organizational** (black) and **Therapeutic** (red) tasks	☐ Teaching Points were made

Questions for Participants

- ☐ Are these the same tasks you suggested?
- ☐ Did you complete these **Organizational** tasks?
- ☐ Based upon your review of the video, were you organized in the first 60 seconds?
- ☐ How do you think your organization impacted your ability to complete key **Therapeutic** (diagnosis and treatment) tasks?
- ☐ Are these the same **Therapeutic** tasks that you suggested a few minutes ago?
- ☐ Did you complete these **Therapeutic** tasks?
- ☐ What were the consequences of not completing the **Organizational** and **Therapeutic** tasks?
  - Elicit redundancy, inefficiency, role confusion, failure to organize team, confusion, errors.
  - Make first teaching point
- ☐ Is it fair to start the clock when the bedside assistant calls for help? When the first person arrives? When the patient gets sick?
  - Make second teaching point.

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Debrief 1: Roles

Section 5 Focus: Analysis of Organizational and Treatment Performance (Next 2 minutes)

Teaching Points

- Completing tasks at 3 minutes requires that the 60 second tasks are completed, Organize, Airway, Breathing and Circulation (**OABC**).

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Review the next 2 minutes of the video	☐ Elicit all the assessment, treatment and organizational tasks that should be completed in the next two minutes.	☐ Open CTT spreadsheet and begin questions below.	☐ Complete tasks list for both **Organizational** (black) and **Therapeutic** (red) tasks	☐ Teaching Points were made

Questions for Participants

- ☐ Are these the same tasks you suggested?
- ☐ Did you complete these **Organizational** tasks?
- ☐ Based upon your review of the video, were you organized in the second and third minute?
- ☐ How do you think your organization impacted your ability to complete key **Therapeutic** (diagnosis and treatment) tasks?
- ☐ Are these the same **Therapeutic** tasks that you suggested a few minutes ago?
- ☐ Did you complete these **Therapeutic** tasks?
- ☐ What were the consequences of not completing the tasks?
  - Elicit redundancy, inefficiency, role confusion, failure to organize team, confusion, errors.
  - Make teaching point.

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Debrief 1: Roles
Section 6 Focus: Quick Quiz and Summary

Teaching Points

- Closed loop communication: the need to find the information, determine its importance, focus transmission, receive the information and confirm the receipt of information.
  Find the data
  Send the data
  Confirm the Receipt
- Most important - not ABC, but OABC

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Review Communication tool	☐ Review questions	☐ NEW RULE: whatever role you played in the last scenario, you may not play again today	☐ Put **Roles and Goals** slide on the screen	☐ Teaching Points were made

Questions for Participants

- ☐ Did communcation play a role in your success or failure?
- ☐ What are the most important goals of a crisis response?
  - Elicit Crisis Recognition and **O**ABC - Calling the code, assembling and organizing the team
- ☐ What was this patient's diagnosis?
  - Note if team correct or incorrect, give answer, explore why the team did not know it, identify barriers.
- ☐ What was the definitive therapy the patient needed to receive?
  - Elicit the teams thoughts and provide participants with the definitive treatment this patient needed.
- ☐ Did you deliver the proper treatment?
  - Elicit the teams thoughts and opinions.
- ☐ What was the outcome: Survival, critical event with survival or death?
- ☐ What is your perception of how well the team performed?
- ☐ What advice do you have for yourself in the next scenario?
  - Elicit the need to focus on organization; Elicit the need to assume a role.
  - Tell them to plan role ahead of time and coordinate with others (Tell them to "cheat").

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Debrief 2: Roles and Tasks
Section 1 Focus: Organizational Performance and Role Organization

Teaching Points

- Learning about the quality of performance motivates people to improve performance. That is why simulation training is important.
- Planning improves organization, organization improves performance, improved performance improves outcome.
- There is a link between priority paid to organization, the organizational tasks accomplished and the actual organization of the team
- Focusing exclusively on treatment tasks ensures poor organization

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Review Questions ☐ Teaching Points were made

Questions for Participants

- ☐ In general was your performance during this scenario better or worse?
  - Elicit reasons why the response was better.
  - Elicit reasons why the response was worse.
- ☐ Did everyone choose a role?
- ☐ Did choosing a role help you focus on specific tasks?
  - Elicit tasks associated with some roles.
  - Discuss how knowing role impacts practice.
- ☐ Did choosing a role help you coordinate with others?
  - Elicit how it helped.
- ☐ Did "cheating" by deciding in the debreifing room who would play each role help?
  - If yes, why did it help? Elicit point that planning ahead helped.
  - If no, would it have helped? Elicit the importance of thinking ahead.

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Debrief 2: Roles and Tasks
Section 2 Focus: Analysis of relationship between organization and task completion

Teaching Points

- A prompt (mnemonic) for pursuing organization first is to state, "Let's get organized". This will foster OABC.
- Assuming the role rapidly focuses (organizes) your own performance, each role had delineated tasks. **First assume a role, then complete the tasks for that role**
- It is important to know the tasks associated with your role in order to complete all the goals of the role.
- Communication impacts survival. Determine what information you have and who it needs to be communicated to.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Complete analysis of scenario using 60 second and 3 minute sheets	☐ Show score for organizational tasks and treatment tasks	☐ Complete and review communication sheet	☐ RULE REMINDER: Can't play the same role as before	☐ NEW RULE: Choose your role now but don't discuss it with others until you get to the code	☐ Teaching Points were made

Questions for Participants

- ☐ In general was the scenario better or worse?
  - Elicit reasons that the response was better.
  - Elicit whether planning and organizing before the scenario improved performance.
- ☐ Did everyone choose a role?
  - Elicit knowing that tasks associated with your own role
  - Also discuss planning, practice and communication
- ☐ Did completing organization tasks improve the team's ability to complete the treatment tasks?
  - If yes, elicit why.
  - If no, elicit why not and suggest why it might have helped.
- ☐ Were there communication barriers?
  - If yes, elicit why and discuss the impact.
  - If no, elicit why not and suggest why it might have helped.
- ☐ Were there communication barriers?

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Debrief 3: Organization and communication impact outcome
Section 1 Focus: Perception of organizational performance

Teaching Points

- Taking away organization impairs performance.
- Organization must happen in real time at the site of a crisis.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Have the participants complete the Team Assessment Questions on their laptops.
- ☐ Teaching Points were made

Questions for Participants

- ☐ Was the team response chaotic or organized?
- ☐ Was the team response better or worse than the last scenario? - Elicit why it was better or why it was worse.
- ☐ In the 2nd session you planned and organized. In the 3rd session you only planned beforehand. Did this impact performance?
  - Elicit how to reintroduce organization in the room in the crisis setting.
- ☐ For those who took on a role, was completing your tasks easier?
  - Elicit why it was easier.
  - Elicit planning and focus on role related tasks.

Lecture | Roles & Goals | Video | Score Sheet | Graphs | **Continue**

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Debrief 3: Raise awareness of team organization
Section 2 Focus: Perception of organizational Performance

Teaching Points

- The 3rd scenario is harder than the 2nd, because teams are not allowed to pre-organize.
- Ability to organize in the room is necessary for good team performance.
- Organization has more impact on performance than who plays which role.
- Organizational skills are correlated with outcome.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Teaching Points were made

Questions for Participants

- ☐ Did the rule that you could not share your planned role before you entered the room impair performance?
  Why did (or didn't) it impair performance?
- ☐ What were the barriers to organizing the response?
  - Elicit all the barriers?
- ☐ Did the rule that you must change roles impact the result?
  - Elicit why did (or didn't) it impact the result.

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Debrief 3: Roles
Section 3 Focus: Perception of organizational performance

Teaching Points

- Data is collected from the same sources for every event: bedside nurse/physicians, chart, physical assessment, monitoring data. Each source must be audited for every patient, every crisis event
- Planning actions improves individual performance.
- Communicating planning and data improves team performance.
- Organizational efficiency equals treatment effectiveness equals improved outcome.

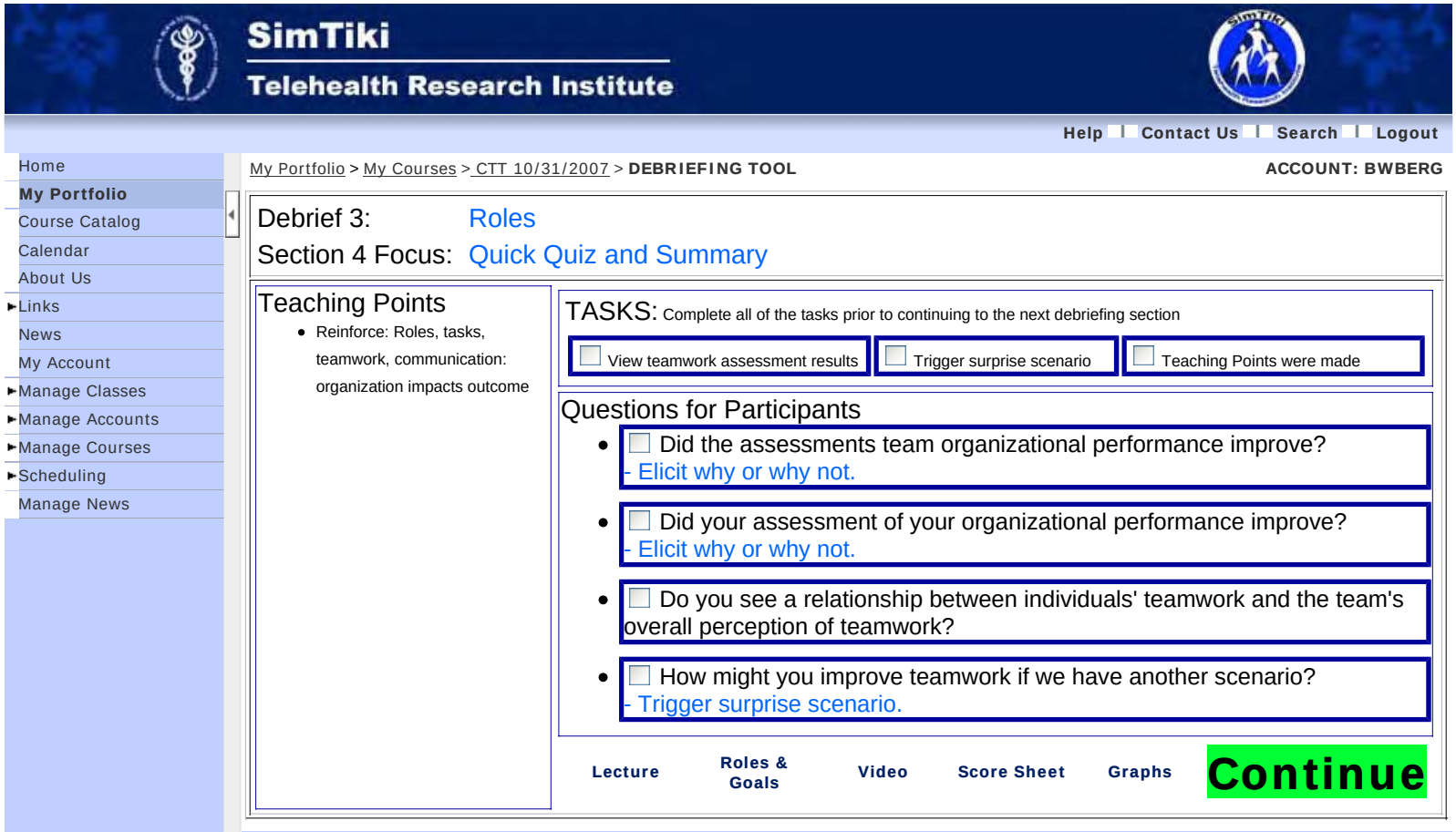
TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ View 60 second video and score it
- ☐ View 3 minute video and score it
- ☐ Complete data probe section
- ☐ Teaching Points were made

Questions for Participants

- ☐ For each task on the 60 second & 3 minute scoring sheet, ask "Did you succeed or fail?"
  - Elicit why you were successful or why you failed.
  - Elicit whether failure to complete tasks impacted outcome.
- ☐ For data communication section, was identification, transmission, and receipt of this data important?
  - Elicit how role identification and communication of your role to other team members impacted data sharing.
  - Remind importance of OABC.
- ☐ Did the success with the transmission of this data element impact outcome?
  - Elicit why it helped.

Lecture | Roles & Goals | Video | Score Sheet | Graphs | **Continue**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ACCOUNT: BWBERG
Debrief 3: Roles
Section 4 Focus: Quick Quiz and Summary
Teaching Points
Reinforce: Roles, tasks, teamwork, communication: organization impacts outcome
TASKS: Complete all of the tasks prior to continuing to the next debriefing section
View teamwork assessment results
Trigger surprise scenario
Teaching Points were made
Questions for Participants
Did the assessments team organizational performance improve?
- Elicit why or why not.
Did your assessment of your organizational performance improve?
- Elicit why or why not.
Do you see a relationship between individuals' teamwork and the team's overall perception of teamwork?
How might you improve teamwork if we have another scenario?
- Trigger surprise scenario.
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Debrief 4: Learning what we learned.
Section 1 Focus: Performance is linked to organization

Teaching Points

- Performance is based on organization .
- This is the most difficult scenario and most realistic because there is no pre-planning or pre-organization.
- For most classes this is their best performance even though it is the most difficult and realistic.
- Efficiency = Effectiveness (OABC).

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Complete Teamness Questionaire ☐ Teaching Points were made

Questions for Participants

- ☐ How did that scenario go?
- ☐ Did it feel real?
- ☐ Why was it harder?
  - Elicit no opportunity to either pre-plan or pre-organize.
- ☐ Did this feel more real than prior scenarios?
  - Elicit most similar to real life
- ☐ Did the patient survive?
  - Elicit impact of planning and organization on teamwork, performance and outcome.
  - Elicit opinion of teamwork and organization

Lecture | Roles & Goals | Video | Score Sheet | Graphs | **Continue**

Debrief 4: Learning what we learned.
Section 2 Focus: Task completion

Teaching Points

- No Teaching Points

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Review 60 second score sheet
- ☐ Review 3 minute score sheet
- ☐ Review communication process

Questions for Participants

- ☐ Go through the tasks: Did you complete this task?
  - Only do yes/no; do not explore barriers

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Debrief 4: Learning what we learned.
Section 3 Focus: Correlation between tasks and outcome

Teaching Points

- As task completion rate rises, probability of survival rises.
- There are 3 types of tasks.
  1) Organizational
  2) Treatment
  3) Communication
- All three types of tasks are important for survival.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Show Totals graph ☐ Teaching Points were made

Questions for Participants

- ☐ In the graphs, do you see a correlation between task performance and simulated patient outcome?
- ☐ Was your initial performance the same or different from others who have taken this course?
- ☐ What does that tell you about the quality of crisis response among people who have not taken a crisis team training course?

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Debrief 4: Learning what we learned.
Section 4 Focus: Transferring skills to the real world.

Teaching Points

- Provide tools that may trigger organization in a real crisis setting:
  1. Say "Let's get organized"
  2. Announce your role, ask others their role
  3. Hand out stickers
  4. Assign roles: always use stickers for this strategy (directing people where to stand is a secondary mnemonic: it will not help people know task responsibilities)

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

☐ Teaching Points were made

Questions for Participants

- ☐ How might you improve crisis response in "the real world" at your institution when you arrive?
  - Elicit strategies for getting team to organize

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Debrief 4: Learning what we learned.
Section 5 Focus: Educational theory.

Teaching Points

- To become expert, you must practice these skills.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Show teamwork assessment graph
- ☐ Teaching Points were made

Summary statements

- ☐ Initially actual performance and perception of performance were not matched. This is unconscious incompetence. They were unskilled and didn't know it.
- ☐ Then actual performance and perception of performance converged. This is conscious incompetence. They were unskilled and recognized it.
- ☐ Next, actual performance and perception of performance improved to a competent level. This is conscious competence. They are skilled but have to think about it.
- ☐ Finally, if you practice you will become unconsciously competent. You are skilled and do not have to think about it the tasks you need to do, you just do them. This is the expert.

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Debrief 4: Learning what we learned.
Section 6 Focus: Course conclusion

Teaching Points

- Review: roles, tasks, communication, cooperation, practice,. Mnemonics help performance, education.

TASKS: Complete all of the tasks prior to continuing to the next debriefing section

- ☐ Please complete post course documentation
- ☐ Give mnemonic cards with crisis criteria and roles/goals
- ☐ Teaching points were made

Instructions for facilitator

- ☐ If time available and team desires, you may do additional scenarios.
  - Do additional scenarios
- ☐ To get credit for this course, trainees must complete all post-course surveys & evaluations online.

Lecture | Roles & Goals | Video | Score Sheet | Graphs | **DONE!**

Scenario Descriptions:

Scenario 1 Description:

Difficulty breathing due to acute myocardial ischemia and CHF

I. Patient name:

Charles Sims

II. Educational Goals:

A. Medical Knowledge:

- Understand the etiology, situations, management of severe dyspnea and cardiac ischemia in the hospital.

B. Planning:

- Know your environment, including emergency equipment and support resources.

C. Resource Management:

- Utilize available personnel and resources, organize the team, obtain all available data, to optimally provide patient care during an emergency.

D. Communication:

- Procure available data: Get EKG previously performed.
- Coordinate team to deliver oxygen within one minute, deliver Nitroglycerine, beta blocker, aspirin within three minutes.
- Call for help from Chest Pain Team

E. Judgement:

- Recognize dyspnea has cardiac cause. Prioritize intervening in myocardial event.

III. Educational Level:

All levels

IV. Pre-event History and Physical:

See below.

V. Patient Parameters:

- Pulse ox 85%
- Heart rate 130 sinus tachycardia
- Respiratory rate 34
- Bilateral wheezes and ronchi
- Complains of chest tightness and difficulty breathing
- BP 180/110

VI. Narrative of Scenario – Facilitator must Read to Trainee

- Mr. Sims is a 47 y.o. man with type two diabetes and polycystic kidney disease and now 3 days post cadaveric kidney transplant.
- Two years pre-op he had a cardiac catheterization with normal coronaries and normal left ventricular function.
- Good renal function post op was exhibited, and he was transferred out of the ICU 18 hours post op.
- Today, on POD 3, at 0900, the patient called the nurse to complain of difficulty breathing and cough. The nurse described a small amount of yellowish sputum and the following vital signs: pulse 90 and respirations 20, temperature 37, BP 150/80.
- At 0930, the patient was having more trouble and the nurse was again called.
- Pulse ox showed SpO2 of 80%, and the nurse applied 6L O2 facemask with pulse ox rising to 94%.
- The intern was notified and ordered an EKG. The EKG has been obtained, and is on the chart. No one has read it yet. Radiology is ready for the patient to be transported for a chest x-ray and a VQ scan.
- The nurse is now returning to put the patient onto a stretcher for the test.

VII. Special Equipment & Drugs:

- Pulse ox, and oxygen
- Crash cart for medications: sl nitroglycerine, metoprolol, lasix, aspirin
- Orange bag, mask for rescue breathing until higher FiO2 is applied.
- **Chart <<ADD CHART CONTENTS HERE>>**
    - **Can keep separate bullet lists**
    - **Item 2, etc.**

VIII. If NOT Treated:

Patient expires.

IX. Proper Treatment:

- Check pulse ox
- Call for condition C immediately
- Put 100% O2 on patient.
- Put defib/quick look pads on patient.
- Diagnose sinus tachycardia at rate 140.
- Obtain history: chest tightness, difficulty breathing, thinks he's going to die.
- Obtain 12 lead EKG from chart: diagnose ST elevation in leads V1-V3
- Continue to observe pulse ox (decrease from 85% to 60% over 2 minutes unless O2 is applied. If O2 applied increase to 89% on 100% FiO2). Goes to 97% is myocardial ischemia and CHF are treated.
- Give nitroglycerine iv or sl.
- Give Heparin.
- Call Chest pain team.

- Give lasix 40 mg iv.
- Give morphine 2-5 mg.
- Failure to give nitro and lasix and morphine causes desaturation again relieved only by intubation and ventilation.
- Triage patient to coronary care unit.
- Assess readiness for transport.

X. Communication Probes

- **INSERT DATA PROBE 1**
- **INSERT DATA PROBE 2**

XI. Debriefing Materials:

- See debriefing worksheet.
- Special considerations
    - Was all clinical obtained, organized and analyzed?
    - What were barriers to this data transmission?
    - Did team recognize that the patient had myocardial ischemia?
    - Was treating myocardial ischemia a priority?

XII. Case Saved as:

W:\am XIII. Code Team Training UPMC - Devita\JHF Project Upgrade

XIII. Development Team:

Michael A. DeVita, MD, John J. Schaefer, III, MD.

XIV. Date Last Revised:

11/21//01
9-23-04

Scenario 2Description

Difficulty breathing due to sustained ventricular tachycardia

I. Patient:

Seymour Trouble

II. Educational Goals:

A. Medical Knowledge:

- Understand the etiology, situations, management of ventricular tachycardia in the hospital.

F. Planning:

- Know your environment, including emergency equipment.

G. Resource Management:

- Utilize available personnel and resources to optimally provide patient care during an emergency.

H. Communication:

- Coordinate team to deliver oxygen within one minute, deliver DC countershock within three minutes, and obtain IV within 4 minutes.

I. Judgement:

- When and how to effectively intervene during a crisis in the interest of patient safety.

III. Educational Level:

All levels

IV. Pre-event History and Physical:

See below.

V. Patient Parameters:

VI. Brief Outline of Scenario:

Mr. Trouble is a 55 y.o. male with known heart failure was transferred out of the CCU to the medical floor yesterday. He has an episode of chest pain relieved by one nitroglycerine, and then develops shortness of breath. A condition C is called because the patient looks bad, and the nurse was unable to palpate a pulse, although the patient is awake and alert.

VII. Special Equipment & Drugs:

Pulse ox, crash cart, orange bag, EKG machine

VIII. If NOT Treated:

Patient expires.

IX. Proper Treatment:

- Call for condition C immediately
- Put 100% O2 on patient.
- Put defib/quick look pads on patient.
- Diagnose wide complex tachycardia rate 140.
- VS BP 90/50, thready pulse at 140 and regular, RR 30.
- Obtain pulse ox (60%, increase to 89% on 100% FiO2).
- Defibrillate with 200 j. Convert to sinus tachycardia.
- Start iv. Give fluid. SpO2 rises from 89% to 98% over 3 minutes, BP increases to135/80, pulse decreases to 100, RR drops to 20.
- Load with amiodarone 150 mg. Lidocaine is an acceptable alternative.
- Magnesium 4 grams iv.
- Obtain 12 lead EKG and interpret it. (Sinus tachycardia)
- Failure to place O2, defibrillate within 3 minutes results in pulseless cardiac arrest, apnea and unresponsiveness.
- Failure to load with amiodarone results in recurrent Ventricular tachycardia
- After cardioversion, and obtaining IV access, transport to CCU. (Must bring emergency meds, monitor)

X. Case Saved as:

M:\devitadocuments\wiser\simulatorCTTscenariorevision2004

XI. Development Team:

Michael A. DeVita, MD, John J. Schaefer, III, MD.

XII. Date Last Revised:

08/14/01

XIII. Debriefing Materials:

-

Scenario 3 Description

Hypoxia due to narcotic induced respiratory depression

I. Patient:

Marge Inoverra

II. Educational Goals:

J. Medical Knowledge:

- Understand the etiology, situations, management of respiratory and neurologic depression in the hospital.

K. Planning:

- Know your environment, including emergency equipment.

L. Resource Management:

- Utilize available personnel and resources to optimally provide patient care during an emergency.
- Know available drugs on crash cart: naloxone and how to use.

M. Communication:

- Coordinate team to deliver oxygen and set up quick look pads within one minute,
- Deliver rescue breathing via bag-mask device within one minute,
- Obtain IV and
- Deliver naloxone, appropriately diluted within 4 minutes.

N. Judgement:

- When and how to effectively intervene during a crisis in the interest of patient safety.
- Decide to give naloxone, reevaluate for clinical change before embarking on neurological evaluation.

III. Educational Level:

All levels

IV. Pre-event History and Physical:

See below.

V. Patient Parameters:

- Patient unresponsive. Pupils pinpoint.
- Normal breath sounds.
- Pulse 100
- BP 100/45
- Respiratory rate 6

- Pulse ox not attached to patient.
- Pulse ox initial on room air: 89%

VI. Brief Outline of Scenario:

Ms. Inoverra is a 45 y.o. female with a history of SAH and fall (with knee injury) one year ago has completely recovered from her neurologic deficit. She had uncomplicated knee surgery yesterday. She has complained of a lot of pain. 5 mg of morphine every 4 hours was not effective in treating her pain last night. This morning at 4 am, she was placed on a PCA with 1mg/dose with an 8 minute lockout interval with some improvement. At 9 am, pain service increased the PCA to a 2mg/hour continuous infusion rate plus 2 mg/dose with 6 minute lockout. It is now 11:30 and the family came out of the room to notify the nurse that Ms. Inoverra would not wake up to eat her lunch.

VII. Special Equipment & Drugs:

Pulse ox, crash cart, orange bag, Narcan.

VIII. If NOT Treated:

Patient expires.

IX. Proper Treatment:

- Call for condition C immediately
- Attempt to arouse patient.
- Put 100% O2 on patient.
- Put defib/quick look pads on patient.
- Diagnose sinus rhythm at 100, and adequate BP.
- Obtain pulse ox (90% on room air, 100% on any O2).
- Obtain history.
- Deliver Narcan, 0.4 mg diluted into 10 cc syringe, give two doses of 0.04 (1 cc) Narcan, with patient recovery.
- Stop PCA continuous infusion.
- Make Triage decision to transport to Surgical ICU for monitoring and more Narcan.

X. Case Saved as:

M:\devitadocuments\wiser\simulatorCTTscenariorevision2004

XI. Development Team:

Michael A. DeVita, MD, John J. Schaefer, III, MD.

XII. Date Last Revised:

08/14/01; 09/27/04

XIII. Debriefing Materials:

- Was Condition C situation recognized rapidly?

- Was team called for rapidly?
- Did team organize rapidly?
- Were key data elements elicited (Pain, SAH history, opioid use, vital signs)?
- Was differential diagnosis considered?
- Was definitive treatment delivered?

Scenario 4 Description

Hypoxia and hypoventilation due to subarachnoid hemorrhage

I. Patient:

Faye Talidy

II. Educational Goals:

O. Medical Knowledge:

- Understand the etiology, situations, management of respiratory and neurologic depression in the hospital.

P. Planning:

- Know your environment, including emergency equipment.

Q. Resource Management:

- Utilize available personnel and resources to optimally provide patient care during an emergency.

R. Communication:

- Coordinate team to deliver oxygen and set up quick look pads within one minute,
- Recognize and communicate key data elements (history, medications, vital signs)
- Call for stroke team.

S. Judgement:

- When and how to effectively intervene during a crisis in the interest of patient safety.
- When the condition C team should call for additional resources: Stroke team.

III. Educational Level:

All levels

IV. Pre-event History and Physical:

See below.

V. Patient Parameters:

- Patient minimally responsive: moans only.
- BP 150/90
- Pulse 110 Sinus rhythm
- Respiratory rate 6
- Right pupil 5 mm, left pupil 2 mm.
- Pulse ox not attached to patient.
- Pulse ox on no oxygen: 88%

VI. Brief Outline of Scenario:

Ms Talidy is a 55 y.o. female with a history of atrial fibrillation who was admitted yesterday with syncopy and fall. She fractured her upper arm and hip. The arm had a closed reduction, the hip an ORIF. Last night she had pain and rapid ventricular response to her atrial fibrillation with rates up to 160. She was treated with dilaudid PCA, 0.3 mg/dose q 6 minutes after loading with a total of 1 mg of dilaudid. She was also treated with 5 mg of Metopralol, with control of the ventricular response to 110. The family came out of the room to notify the nurse that Ms. Talidy would not wake up to eat her lunch.

VII. Special Equipment & Drugs:

- Pulse ox,
- Crash cart,
- Orange bag,
- Naloxone

VIII. If NOT Treated:

Patient expires.

IX. Proper Treatment:

- Attempt to arouse patient.
- Call for condition C immediately: mental status change
- Put 100% O2 on patient.
- Put defib/quick look pads on patient.
- Assess hypoventilation.
- Rescue breating
- Obtain pulse ox (90% on room air, 100% on any O2).
- Obtain history.
- Deliver Narcan, 0.4 mg diluted into 10 cc syringe, give two doses of 0.04 (1 cc) Narcan. (No effect).
- Check pupils.
- Call stroke team.
- Triage and transport to Surgical ICU for monitoring.

X. Case Saved as:

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XI. Development Team:

Michael A. DeVita, MD.

XII. Date Last Revised:

08/14/01; 09/27/04.

XIII. **Debriefing Materials:**

- Was Condition C situation recognized rapidly?
- Was team called for rapidly?
- Did team organize rapidly?
- Were key data elements elicited (Pain, Atrial fibrillation history, opioid use, vital signs, unequal pupils)?
- Was differential diagnosis considered?
- Was definitive treatment delivered?
- Stroke team called?
- Triage?

Scenario 5 Description

Pulseless and apneic patient

XIV. Patient:

Anita Hart

XV. Educational Goals:

T. Medical Knowledge:

- Understand the etiology, situations, management of pulselessness in the hospital.

U. Planning:

- Know your environment, including emergency equipment.

V. Resource Management:

- Utilize available personnel and resources to optimally provide patient care during an emergency.

W. Communication:

- Coordinate team to deliver oxygen within one minute,
- Delegate roles and goals

X. Judgement:

- When and how to effectively intervene during a crisis in the interest of patient safety.

XVI. Educational Level:

All levels

XVII. Pre-event History and Physical:

See below.

XVIII. Patient Parameters:

- Ventricular fibrillation
- Pulseless and apneic
- After shock: sinus rhythm at 90.
- With compressions, pulse ox 90, pulse obtainable.

XIX. Brief Outline of Scenario:

Ms. Hart is on a medical floor, and is found pulseless and apneic at change of shift. No housestaff know the patient. The nurse is a per diem.

XX. Special Equipment & Drugs:

- Pulse ox,

- Crash cart,
- Orange bag,
- Defibrillator

XXI. If NOT Treated:

Patient expires.

XXII. Proper Treatment:

- Call for Condition A immediately
- Assess Airway, Breathing, Circulation
- Begin CPR
- Back board
- Position patient airway
- Begin rescue breathing
- Put defib pads on patient.
- Diagnose ventricular fibrillation.
- Defibrillate (at least 300 joules monophasic; or 120 joules biphasic)
- After conversion: Check pulse, BP, RR, and pulse ox.
- Transport to CCU (apparent arrhythmic death) or MICU.
- Must bring emergency meds, monitor

XXIII. Case Saved as:

M:\devitadocuments\wiser\simulatorCTTscenariorevision2004

XXIV. Development Team:

Michael A. DeVita, MD, John J. Schaefer, III, MD.

XXV. Date Last Revised:

10/31/01; 09/27/04

XXVI. Debriefing Materials:

- Did call for help occur rapidly?
- Did team bring equipment and deploy it rapidly?
- Did team organize into specific roles with specific goals?
- Did team know how to use defibrillator?
- Was data flow efficient?
- Was treatment delivered within time frame?

Scenario 6 Description

Null scenario

XV. Patient:

Charlie Horse

XVI. Educational Goals:

Y. Medical Knowledge:

- Understand the etiology, situations, management of mental status change; verify crisis situation.

Z. Planning:

- Know your environment, including emergency equipment.

AA. Resource Management:

- Utilize available personnel and resources to optimally provide patient care during an emergency.

BB. Communication:

- Communicate key history elements to the medical team.
- Coordinate team to assess vital signs rapidly.
- Reassess crisis status within three minutes.

CC. Judgement:

- When and how to effectively intervene during a crisis in the interest of patient safety.

XVII. Educational Level:

XVIII. All levels

XIX. Pre-event History and Physical:

- See below.

XX. Patient Parameters:

- Unresponsive for 90 seconds, then moans.
- Will respond to sternal rub or other noxious stimuli
- Sinus rhythm at 85/minute
- Respiratory rate 18
- BP 150/85
- Pulse ox 92% on nasal cannula at 2 liters

XXI. Brief Outline of Scenario:

Mr. Horse is a 79 year old gentleman with a history of COPD, CHF and prostate cancer. He was admitted two days ago for respiratory and mental status

depression due to hypercalcemia. He has been rehydrated with normal saline and has been positive a total of 3 liters over the past two days. He was given palmidronate to reduce his serum calcium level. His creatinine was elevated at 3.1 on admission, but had improved yesterday to 2.4. Today's labs are pending. Last night, the nurse reported that the patient was confused, and sun-downing. He was given diphenhydramine by the house officer and the patient settled down. This morning the PST reports that the patient did not respond when she went in to take his vital signs.

XXII. Special Equipment & Drugs:

- Pulse ox, crash cart, orange bag, defibrillator.
- Chart contains information regarding administration of diphenhydramine and diphenhydramine sensitivity. Sensitivity is over sedation.

XXIII. If NOT Treated:

No change.

XXIV. Proper Treatment:

- Assess patient for responsiveness carefully. Do not call for help.
- If responsiveness not carefully assessed, call for Condition C immediately.
- Team should assess vital signs and neurologic status carefully
- No treatment is required

XXV. Case Saved as:

M:\devitadocuments\wiser\simulatorCTTscenariorevision2004

XXVI. Development Team:

XXVII. Michael A. DeVita, MD.

XXVIII. Communication Probes

- History of diphenhydramine sensitivity
- Normal vital signs

XXIX. Date Last Revised:

9/23/04

XXX. Debriefing Materials:

- Was patient's neurologic status carefully assessed?
- Did the nurse identify whether condition c criteria were met?
- Did the team organize rapidly?
- Did the team do a careful neurologic assessment?
- Did the team identify that cardiopulmonary systems were stable?

Scenario 7 Description

Retroperitoneal Hemorrhage

I. Patient: Sara Doctor

II. Educational Goals:

DD. Medical Knowledge:
- Understand the causes of hypotension in a postoperative patient.
- Know the management of hypovolemia and hemorrhage.

EE. Planning:
- Know your environment, including emergency equipment, and resources for blood transfusion.

FF. Resource Management:
- Utilize available personnel and resources to optimally provide patient care during an emergency.

GG. Communication:
- Communicate key history elements to the medical team.
- Coordinate team to assess vital signs rapidly.
- Communicate hypotension.
- Communicate data from chart.
- Treat hemorrhage with fluids.
- Obtain packed cells, and FFP.
- Call surgery or trauma team to see patient.

HH. Judgment:
- When and how to effectively intervene during a crisis in the interest of patient safety.
- Make decision to treat hemorrhage aggressively.
- Call for help, problem is beyond capability of the condition team.

III. Educational Level:

a. All levels

IV. Pre-event History and Physical:
- See below.

V. Patient Parameters:
- Disoriented, confused, restless.
- BP: 70/40

- Pulse 140 sinus tachycardia
- Pulse ox: unobtainable; alarming: no signal
- Respiratory rate: 30

VI. Brief Outline of Scenario:

Mrs. Doctor is a 78 year old woman with a history of peripheral vascular disease, smoking, diabetes type 2, and distant history of breast cancer treated with mastectomies, radiation and hormonal therapy. She was admitted two days ago for repair of AAA, which at surgery was found to be leaking. In the first few hours after surgery, the patient had surgical wound oozing, which resolved after 2 units of FFP were given. The post-op EKG was negative, and she has had negative troponin levels. It is post-op day #1, and this morning she felt weak. Her blood pressure was normal, but she was tachycardic to 120 (up from her peri-operative baseline of 95). She was otherwise normal. Now, one hour later, the nurse is responding to a pulse ox alarm that is going off.

Her creatinine is elevated at 3.1, and her INR this morning is 1.9. This morning, her hematocrit was 24; it was 28 yesterday. Glucoses have been in the 200's on a 20 unit sliding scale q6 hours, which was increased last night to 28 units q4hours.

VII. Special Equipment & Drugs:

- Pulse ox
- Crash cart
- Orange bag
- Defibrillator
- FFP
- PRBCs
- Hextend
- Introducer, already in place in Internal Jugular Vein.
- Midline abdominal dressing, with blood at inferior end.
- Sutures on abdomen with blood.

VIII. If NOT Treated:

Patient expires.

IX. Proper Treatment:

- Assess cause of pulse ox alarm, reposition pulse ox, feel pulse, determine tachycardia.
- Recognize mental status change.
- Call for help: Condition C.
- Bring in crash cart.
- Team should assess vital signs recognize hypotension, potential causes.
- Take down dressing, note blood.
- Open up fluids. Start second IV line: infuse Hextend.
- Call for pRBCs.

- Note previous coagulopathy and give FFP, DDAVP.
- Call trauma team, or vascular surgery stat.

X. Case Saved as:

M:\devitadocuments\wiser\simulatorCTTscenariorevision2004

XI. Development Team:

Michael A. DeVita, MD.

XII. Communication Probes

- BP 70
- Falling Hct

XIII. Date Last Revised:

9/23/04

XIV. Debriefing Materials:

- Was hypotension recognized?
- Was it recognized as a possible cause of neurologic change?
- Was bleeding in the differential diagnosis of hypotension?
- Did team organize rapidly?
- Did the team identify IV access?
- Did team fluid resuscitate?
- Was it recognized that the situation was beyond the capabilities of the condition team to resolve?
- Did the team call for help?

Scenario 8 Description

PEA from post procedure pneumothorax.

XV. **Patient:** Heywood Hugh Buzzov

XVI. Educational Goals:

II. Medical Knowledge:
- Understand the potential etiology of PEA.
- Identify situations in which PEA might occur.
- How to manage mental status change.
- Verify crisis situation.
- Understand complications of Intravascular catheter placement.
- Understand the treatment of PEA.

JJ. Planning:
- Know your environment.
- Know personnel and equipment resources available.
- Know how to access resources.

KK. Resource Management:
- Utilize available personnel.
- Utilize equipment resources to optimally provide patient care during an emergency.

LL. Communication:
- Communicate key history elements to the medical team.
- Coordinate team to assess vital signs rapidly.
- Organize team.
- Delegate procedure to appropriate physician.
- Call for support from other services.
- Obtain key radiology results.

MM. Judgement:
- When and how to effectively intervene during a crisis in the interest of patient safety.
- Determine most likely cause of crisis.
- Intervene with thoracostomy tube.

XVII. Educational Level:

a. All levels

XVIII. Pre-event History and Physical:
- See below.

XIX. Patient Parameters:

- Unresponsive.
- Pulseless
- Sinus rhythm at 130 per minute
- Apneic.
- No BP.
- Pulse ox no signal alarm.
- On nasal cannula at 6 liters
- No breath sounds on Right; ronchi on left.
- Heart shifted to the left.
- Difficult to bag ventilate due to obstruction.

XX. Brief Outline of Scenario:

Mr. Buzzov is a 74 year old gentleman with a history of COPD, CAD, CABG 5 days ago, CHF and prostate cancer. He was admitted six days ago for elective CABG x 4 vessels, which was complicated by difficulty weaning from mechanical ventilation for two days post op. He was weaned on post op day two and observed in the ICU for another day because his respiratory rate tended to be high. He was transferred to a step down unit yesterday. He had been diuresed 4 liters over the last two days. Today developed fever to 101.5, tachypnea to a rate of 26, and tachycardia to 120. His creatinine increased from 1.2 pre-op to 1.7 today. Because of the fever, he was cultured, given acetaminophen, started on piperacillin/tazobactam, and his central line removed, and a new right IJ triple lumen inserted. An EKG showed sinus tachycardia. ABG showed a mild respiratory and metabolic alkalosis, with adequate oxygenation on 6 liters nasal cannula. The chest x-ray is performed and available, but not read. His Pulse ox alarm and NIBP alarms have both gone off. The nurse is responding to the alarms.

XXI. Special Equipment & Drugs:

- Pulse ox, crash cart, orange bag, defibrillator, 14 g. catheter for Pneumothorax treatment, pigtail kit..

XXII. If NOT Treated:

Patient expires

XXIII. Proper Treatment:

- Assess patient for responsiveness, pulse and respirations.
- Call for Condition A immediately.
- Start chest compressions.
- Team should assess pulseless apnea and perform CPR.
- Fluids wide open.
- Epinephrine and calcium given.
- Obtain history.
- Recognize PEA.

- Identify etiologies: septic shock, Pneumothorax, pericardial tamponade, acidosis.
- Check CXR.
- Treat Pneumothorax with needle or pigtail.

XXIV. Case Saved as:

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XXV. Communication Probes

- History of procedure
- Absent breath sounds on right

XXVI. Development Team:

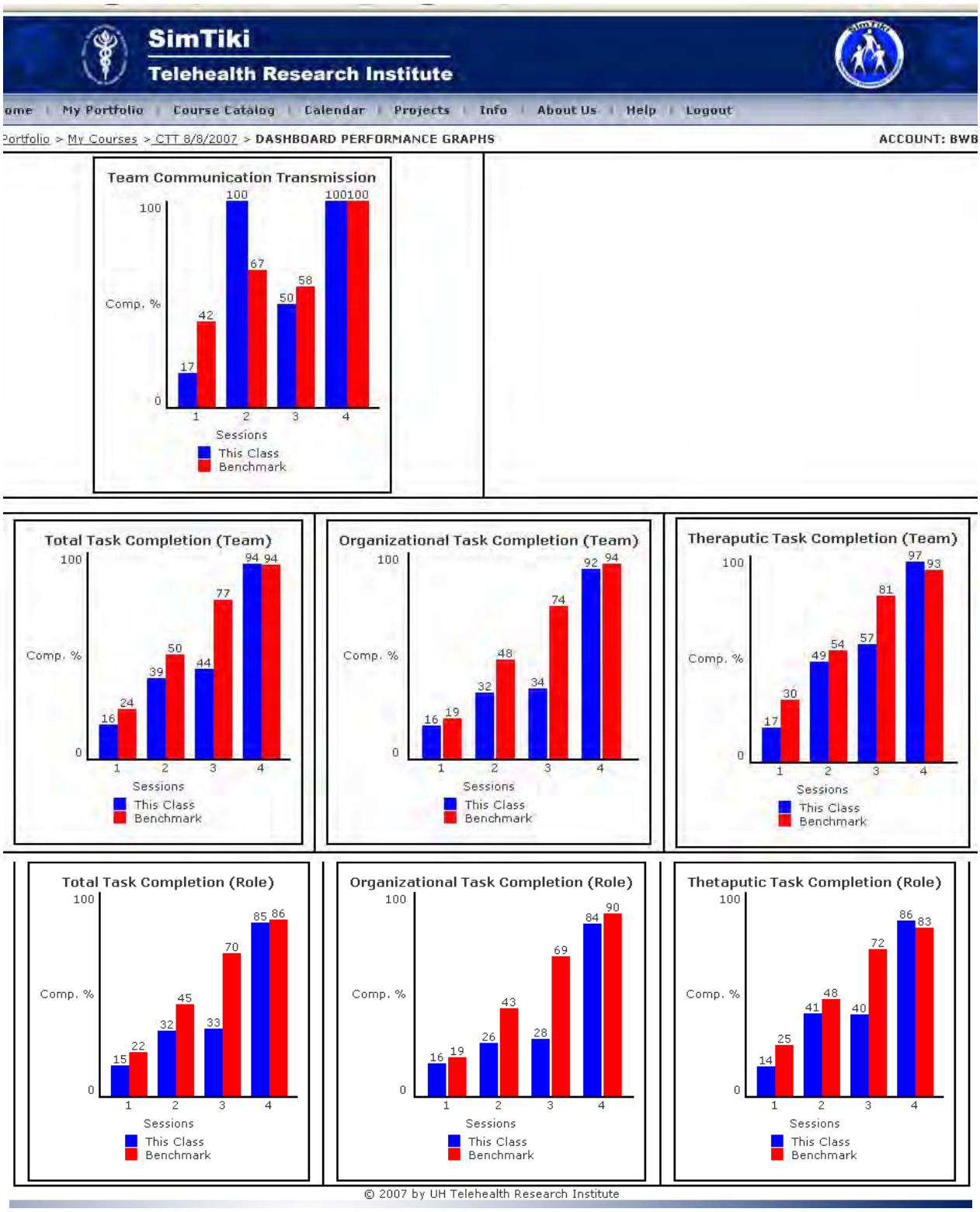
Michael A. DeVita, MD.

XXVII. Date Last Revised:

9/23/04

XXVIII. Debriefing Materials:

- Was patient's recognized to be pulseless and apneic?
- Did the nurse identify and call a Condition A?
- Did the team organize rapidly?
- Did the team do a careful ABC assessment?
- Did the team identify that the patient had PEA?
- Did the team identify potential etiologies?
- Did the team treat PEA/tension Pneumothorax correctly?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Portfolio > My Courses > CTT 8/8/2007 > DASHBOARD PERFORMANCE GRAPHS
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Benchmark
Total Task Completion (Team)
Organizational Task Completion (Team)
Theraputic Task Completion (Team)
Total Task Completion (Role)
Organizational Task Completion (Role)
Thetaputic Task Completion (Role)
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Debrief 1: **Roles**
Section 1 Focus: **Scenario Fidelity**

Teaching Points

- It is important to use a simulator for training / learning because you must train as you play, play as you train.
- We believe that unless it seems "real" it is unlikely to effect performance behavior.

Tasks

Trainees complete Perception of TeamWork in Auto Debrief Tool <<prompt to Perception of Teamwork in "Auto Debrief">>	Review Questions with Participants

Questions for Participants:

- Did the scenario feel real?
  - Elicit opinions and explore why they think / do not think the scenario felt real.
- Was your internal feeling similar to what you feel during a real crisis simulation?
  - Elicit opinions and explore why.
- Was your behavior similar to what you do during a real crisis situation?
  - Elicit opinions and explore why.
- Was the behavior of the other participants similar to the way they behave during a real crisis situation?
  - Elicit opinions and explore why.

Next Section

Note: For the train the trainer course – will need to teach the trainer to elicit cognitive and psychological domains.

Debrief 1: **Roles**

Section 2 Focus: **Perception of Organizational Performance**

Teaching Points

- To avoid chaos, devote time and effort to organization.
- Choosing roles aids organization.
- Not just ABC (Airway, Breathing, Circulation), but **OABC** (Organization, Airway, Breathing, Circulation)

Tasks					
Display results of Perception of Team Work from Auto Debrief Tool <<provide a link to the results>>	Review Questions with Participants				

Questions for Participants:

- Was the team response chaotic or organized?
  - Elicit opinions and rationale
- What would improve organization?
  - Elicit: * Leadership *Knowing your own role *Planning *Practice *Communication
- If you were going to make rules regarding what to do to improve team organization, what would those rules be?
  - Elicit: some roles, list tasks to be accomplished, list a sense of division of labor, list tasks to be accomplished and priorities.
- What tasks do you think should be accomplished within the first 60 seconds of a crisis response?
  - Elicit as many tasks as possible.
- Which of those tasks are organizational tasks and which are patient care tasks?
  - Analyze priority trainees have placed on organization.
  - Most times participants don't list organizational tasks – if none listed, explore what organizational tasks should be done.
- Which is a higher priority during the first 60 seconds?
  - Explore rationale for prioritizing organizational tasks over treatment tasks.
  - Discuss OABC

							Next Section

Note for Train the Trainer – Utilize Socratic teaching method.

Debrief 1: **Roles**
Section 3 Focus: **Role Organization**

Teaching Points

- Failure to assume a role will lead to chaos and failure.

Tasks

Have students identify role played in scenario Go to Start (1) of Excel Spreadsheet and Complete	Review video to demonstrate role fulfillment.

Questions for Participants:

- Who was in each role?
  - Instruct trainees to rapidly raise their hands when they hear you call out the role designation they played. Capture in Spreadsheet Tool
  - **ADD ROLE PLAYED TO MOHAMMED'S TOOL**
- How many roles were unfilled?
- How many roles had more than one person filling in?
- What happens when more than one person or no one is filling a role?
  - Elicit *Redundancy * Inefficiency * Role Confusion * Team Organization Confusion * Errors

Next Section

Note – can the general data default into the spreadsheet at the beginning of the course.

Debrief 1: **Roles**

Section 4 Focus: **Analysis of Organizational and Treatment Performance (60 seconds)**

Teaching Points

- No Teaching Point - Leading up to Section 6

Tasks

Review the first 60 seconds of the video.	Open CTT Spreadsheet + Complete Task List for both Organizational (Black) and Therapeutic (Red) Tasks Go to 60 Sec S1) of Excel Spreadsheet and Complete	Review Questions			

Questions for Participants:

- Are these the same tasks you suggested?
- Did you complete these organizational tasks?
- Based on your review of the video, were you organized in the first 60 seconds?
- How do you think your organization impacted your ability to complete key patient care (diagnosis and treatment) tasks?
- Are these the same patient care tasks that you suggested a few minutes ago?

- Did you complete these patient care tasks?

		• What were the consequences of not completing the tasks? - Elicit *Redundany * Inefficiency * Role Confusion * Team Organizaiton Confusion * Errors • Is it fair to start the clock when the bedside assistant calls for help? When the first person arrives? When the patient gets sick?					
							Next Section

NOTE: Debrief Spreadsheet needs to be fixed – Defibrillator is misspelled

Debrief 1: **Roles**

Section 5 Focus: **Analysis of Organizational and Treatment Performance (next 2 minutes)**

Teaching Points

- No Teaching Point – Leading up to Section 6

Tasks

Review the first 60 seconds of the video.	Open CTT Spreadsheet + Complete Task List for both Organizational (Black) and Therapeutic (Red) Tasks Go to 3 Min S1) of Excel Spreadsheet and Complete	Review Questions			

Questions for Participants:

- Are these the same tasks you suggested?
- Did you complete these tasks?
- Based on your review of the video, were you organized in the second and third minute?
- How do you think your organization impacted your ability to complete key patient care (diagnosis and treatment) tasks?
- Are these the same patient care tasks that you suggested a few minutes ago?
- Did you complete these patient care tasks?

		• What were the consequences of not completing the tasks? - Elicit *Redundany * Inefficiency * Role Confusion * Team Organizaiton Confusion * Errors					
							Next Section

Debrief 1: **Roles**
Section 6 Focus: **Quick Quiz and Summary**

Teaching Points

- Closed loop communication: the need to find the information, determine its importance, focus transmission, receive the information and confirm receipt of information.
  Find It, Send It, Receive It

- **Most important – not ABC, but OABC**

Tasks

Review Communication Tool	Review Questions	NEW RULE: Whatever role you played in the last scenario, you may not play again today.	Put Roles and Goals Slide on Screen		

Questions for Participants:

- What is the most important goal of a crisis response?
  - Elicit Crisis Recognition and OABC – Calling the code, assembling and organizing the team.

- What was this patient's diagnosis?
  - Note if team correct or incorrect, give answer and explore why the team did not know it: identify barriers.

- What was the definitive therapy the patient needed to receive?
  - Elicit the team's thoughts and provide participant's with the definitive treatment this patient needed.

- Did you deliver the proper treatment?
  - Elicit the team's thoughts and opinions.

- What was the outcome: survival, critical event with survival or death?

- What is your perception of how well the team performed?

		• After our review of this video, do you believe your group perception was accurate? • What advice do you have for yourself in the next scenario? - Elicit suggestions to focus on in the next scenario. - Elicit the need to assume a role.					
							Next Section

Debrief 2: **Roles and Tasks**

Section 1 Focus: **Perception of Organizational Performance and Role Organization**

Teaching Points

- Most teams feel embarrassed by their first team performance because it was so poorly organized and the outcome is so bad. To prevent a repeat, groups plan ahead.
- Planning improves organization, organization improves performance, improved performance improves outcome.
- There is a link between priority paid to organization, the organizational tasks accomplished and the actual organization of the team.
- Focusing exclusively on treatment tasks ensures poor organization.

Tasks

Review Questions

Questions for Participants:

- In general was the scenario better or worse?
  -Elicit reasons that the response was better.

- Did everyone choose a role.?
  - Elicit knowing that tasks associated with your own role.
  - Also discuss planning, practice and communication.

- Did you "cheat" by deciding in the debriefing room who would play each role?
  - If yes, why did it help? Elicit point that planning ahead helped
  - If no, would it have helped? Elicit the importance of thinking ahead.

Next Section

Debrief 2: **Roles and Tasks**

Section 2 Focus: **Analysis of key tasks within 3 minutes**

Teaching Points

- A prompt (mnemonic) for pursuing organization first is to state, "Let's get organized."
- Assuming the role rapidly focuses (organizes) your own performance: each role has delineated tasks.
  First assume a role, then complete the tasks for that role.
- It is important to know the tasks associated with your role in order to complete all the goals of the role.

Tasks

Complete analysis of scenario using the 60 second and 3 minute sheets.	Complete and review communication sheet	Show score for organizational tasks and treatment tasks	RULE REMINDER: Can't play the same role as before.	NEW RULE: Choose the role before you get there and don't discuss with others.	Put Roles and Goals Slide on Screen

Questions for Participants:

- In general was the scenario better or worse?
  -Elicit reasons that the response was better.
- Did everyone choose a role.?
  - Elicit knowing that tasks associated with your own role.
  - Also discuss planning, practice and communication.
- Did you "cheat" by deciding in the debriefing room who would play each role?
  - If yes, why did it help? Elicit point that planning ahead helped
  - If no, would it have helped? Elicit the importance of thinking ahead.

Next Section

CTT INSTRUCTOR TRAINING WRAP-UP

Curriculum Reference

QUALITY IMPROVEMENT REPORT

Improving medical emergency team (MET) performance using a novel curriculum and a computerized human patient simulator

M A DeVita, J Schaefer, J Lutz, H Wang, T Dongilli

Adult Learning Characteristics

- **Adults Generally Desire to Take More Control Over Their Learning Than Youth**

Adult Learning Characteristics

- **Adults Draw Upon Their Experiences as a Resource in Their Learning Efforts More Than Youth**

Adult Learning Characteristics

- **Adult Tend to be More Motivated in Learning Situations Than Youth**

Adults Generally Desire to Take More Control Over Their Learning Than Youth

Adult Learning Characteristics

- **Adults Are More Pragmatic in Learning Than Youth**

Adult Learning Characteristics

- In Contrast to Youth, the Learner Role is Secondary for Adults

Adult Learning Characteristics

- Adults Must Fit Their Learning into Life's "Margins"

Adult Learning Characteristics

- Many Adults Lack Confidence in Their Learning

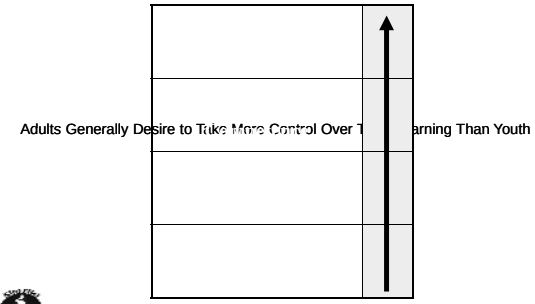
Adult Learning Characteristics

- Adults are More Resistant to Change Than Youth

Adult Learning Characteristics

- Adults Are More Diverse Than Youth

The Competency Spectrum



The Competency Spectrum

UNCONSCIOUS INCOMPETENCE

Adults Generally Desire to Take More Control Over Their Learning Than Youth

When I first played with a typewriter, I was blissfully unaware that I didn't know how to type – I was a little kid I hit keys and I had fun

The Competency Spectrum

CONSCIOUS INCOMPETENCE

Adults Generally Desire to Take More Control Over Their Learning Than Youth

I became aware that my parents and teachers could type much faster than me. It was annoying, but I didn't really know what I could do about it…they somehow used all of their fingers.

The Competency Spectrum

CONSCIOUS COMPETENCE

After playing with a typing program, I could touch type. I could go faster. However, I had to have the complete thought, then hold each word in my mind as my fingers struggled for the keys. The process was very serial, and it led to errors, because I'd often lose my place in my thought while I was thinking about typing.

The Competency Spectrum

UNCONSCIOUS COMPETENCE

The stage where I don't have to think about typing at all. I just think each word, and sometimes I don't even have to do that. I can be thinking of the next thing I'm going to write while making a correction on the previous line. The speed of my typing is much faster than it used to be – and also the quality of what I type is better.

SimTiki
Telehealth Research Institute

CRISIS TEAM TRAINING
INSTRUCTOR WALKTHROUGH

0830	Instructor confirms all computrers and manikins are working
0900	Instructor does brief intro to RRT principles
0915	Introductory lecture using the SimTiki Website student material
0945	Case I
	Instructor asks for volunteer and provides the backkround history
	Volunteer assesses pt and calls for assistance of the RRT
	Team comes to bedside and perfoms a resususcitation - 3-5 minutes
	Team returns to conference room
	Completes self perception survey using keypads
	Reviews and debriefs the scenario with audio and video
	Focus - Team and roles - lack of roles
	Complete the Performance spreadsheet
	Repeats self perception survey
1015	Case II
	Instructor asks for volunteer and provides the backkround history
	Volunteer assesses pt and calls for assistance of the RRT
	Team comes to bedside and perfoms a resususcitation - 3-5 minutes
	Team returns to conference room
	Completes self perception survey using keypads
	Reviews and debriefs the scenario with audio and video
	Focus - Better on Team and roles - lack of roles
	Repeats self perception survey
1100	Case III
	Instructor asks for volunteer and provides the backkround history
	Volunteer assesses pt and calls for assistance of the RRT
	Team comes to bedside and perfoms a resususcitation - 3-5 minutes
	Team returns to conference room
	Completes self perception survey using keypads
	Reviews and debriefs the scenario with audio and video
	Focus - Areas of improvement
	Repeats self perception survey
1145	LUNCH
1300	Case IV
	Instructor asks for volunteer and provides the backkround history
	Volunteer assesses pt and calls for assistance of the RRT
	Team comes to bedside and perfoms a resususcitation - 3-5 minutes
	Team returns to conference room
	Completes self perception survey using keypads
	Reviews and debriefs the scenario with audio and video
	Focus - Areas of improvement
	Repeats self perception survey
	Concepts of development of competence
	Course Wrap up begins
1345	Case V
	SURPRISE CASE Announced
	Team comes to bedside and perfoms a resususcitation - 3-5 minutes
	Team returns to conference room
	Trends in Team performance are reviewed
1430	Course Wrap up Completed
1445	Instructor candidate debriefing
1515	**END OF DAY**

SIMCRITTER
FINAL REPORT 2008

APPENDIX
A-12

SIMCRITTER SAFETY CLIMATE SURVEY DATA COLLATION TOOL

Representative Completed Data Entry

Enter data from individual surveys below, entering each person's response on a separate line. Data should be entered numerically using the following:
Disagree Strongly = 1 Disagree Slightly = 2 Neutral = 3 Agree Slightly = 4 Agree Strongly = 5
Questions not answered or answered as Not Applicable should be left blank. Do not enter a "0" or other value.

HELP

Individual Respondent *(enter serial number if applicable)*	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14 phys	Q14 nurs	Q14 pharm	Q15	Q16	Q17	Q18	Q19	OVERALL MEAN:	SAFETY CLIMATE MEAN:	Safety Climate Score
765	2	2	2	3	2	3	3	2	4	2	3	3	3	4	4	4	2	3	3	4	3	2.81	2.43	36
766	3	3	4	4	4	3	3	4	4	5	4	5	3	5	5	5	5	4	5	3	4	4.05	3.71	68
767	5	5	1	3	3	2	2	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3.10	3.86	71
768			5		5	5	5	5	5		3						5	5	3			4.60	4.33	83
769			3		4	4	5	5	5	5	2	5		5	5	5	3	5	5			4.40	4.25	81
770	5		4	5	5	4	4	4	5	4	4		5	4	4	4	4	4	5	1	5	4.42	4.50	88
771	4	3	5		3	2	4	5	5	5	2	3	2	2	2	2	5	5	3	2	4	3.50	4.00	75
772		5	4	3	5	4	5	5	5	4	5	3	4	4	4	4	4	5	5	1	5	4.40	4.83	96
773	3	4	5	4	5	3	4	3	5	4	5	5	4	5	5	5	5	4	4	1	5	4.38	4.14	79
774	4	4	4	4	3	3	4	4	4	4	5	5	5	4	4	4	4	4	5	2	5	4.14	4.14	79
775	2	4	2	2	2	2	2	3	4	2	4	5	3	1	1	1	2	2	4	2	4	2.67	3.29	57
776	3	5	1	4	5	4	2	5	5	4	4	5	5	2	2	2	4	4	4	4	5	3.67	4.00	75
777	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1	5	5.00	5.00	100
778	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	1	5	4.90	5.00	100
779	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3.00	3.00	50

Questions not answer	JOB DESCRIPTION SELECTED BY RESPONDENT											EXPERIENCE IN POSITION						
Individual Respondent *(enter serial number if applicable)*	Attending / Staff Physician	Physician In Training	Pharmacist	Technician	Staff Nurse	Nurse Manager / Charge Nurse	Respiratory Therapist	PT / OT / Speech	Dietician	Support Associate	Administrator	Other	Less than 6 months	6 - 11 months	1 - 2 years	3 - 7 years	8 - 12 years	13- 20 years	21 or more years
765					X														
766						X											X		
767					X														X
768												X	X						
769												X				X			
770												X					X		
771												X			X				
772												X				X			
773						X											X		
774					X														
775					X												X		
776					X													X	
777				X											X				
778												X						X	
779												X				X			

Questions not answer	EXPERIENCE IN SPECIALTY							EXPERIENCE IN ORGANIZATION							AGE					UNIT
Individual Respondent *(enter serial number if applicable)*	Less than 6 months	6 - 11 months	1 - 2 years	3 - 7 years	8 - 12 years	13- 20 years	21 or more years	Less than 6 months	6 - 11 months	1 - 2 years	3 - 7 years	8 - 12 years	13- 20 years	21 or more years	< 30	30 - 35	35 - 39	40- 44	45 and >	Enter unit or department if noted
765																				
766					X							X							X	
767					X									X					X	
768					X					X						X				
769				X							X								X	
770																			X	
771										X						X				
772				X										X					X	
773					X							X							X	
774												X						X		
775							X					X							X	
776					X								X					X		
777			X							X					X					
778					X					X							X			
779				X							X									

SIMCRITTER
ANNUAL REPORT 2008

APPENDIX
A-13

SIMCRITTER

Simulation Crisis Team Training Effect on Rural Hospital Safety Climate

Benjamin W Berg, MD

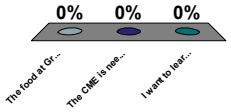
Director of Simulation
Telehealth Research Institute
University of Hawaii
John A Burns School of Medicine

Hilo Medical Center Medical Staff Grand Rounds
August 8 ,2009

Supported by USAMRAA Award
Contract No. W81XWH-07-1-0621
Views are those of the authors

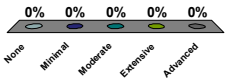
I am here because

1. The food at Grand rounds is wonderful
2. The CME is needed
3. I want to learn more about the research programs at HMC



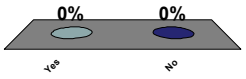
My experience with simulation based education is

1. None
2. Minimal
3. Moderate
4. Extensive
5. Advanced



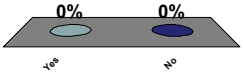
I have completed a Safety Climate Survey at HMC

1. Yes
2. No



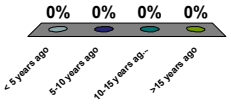
I have visited the simulation center at HMC

1. Yes
2. No



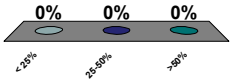
I graduated from medical school

1. < 5 years ago
2. 5-10 years ago
3. 10-15 years ago
4. >15 years ago



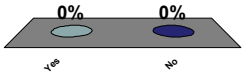
Medical education is part of my job

1. < 25%
2. 25-50%
3. >50%



I have used an audience response system before today

1. Yes
2. No



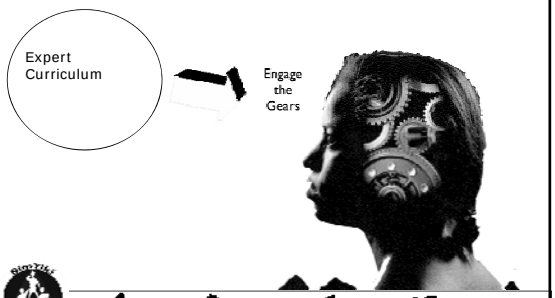
Outline

Simulation Based training
Patient Safety
Safety Climate Survey
SimCritter Project
Results
Discussion

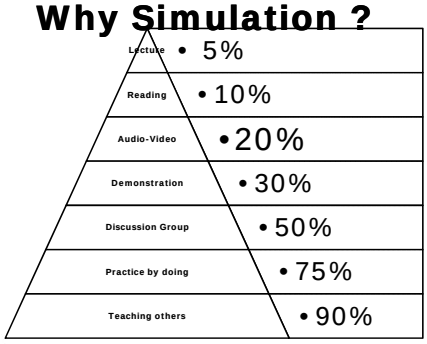
What is Simulation?

Simulators

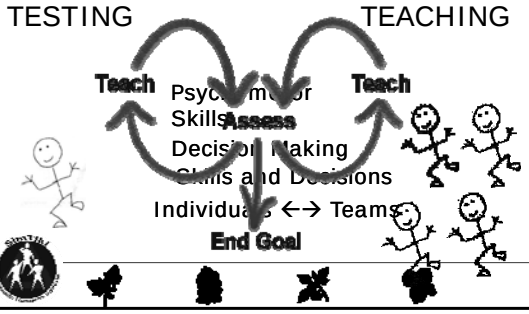
What's the Goal?



Why Simulation ?



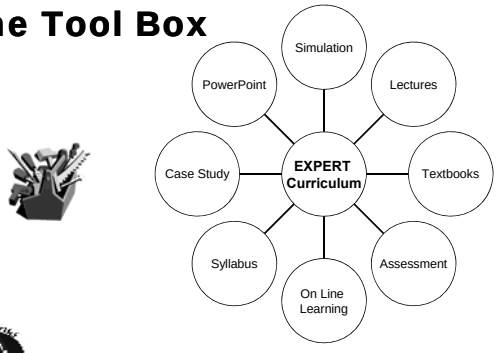
Why Simulation?



Why Not Simulation? It is Difficult!

- Not Efficient - Lecture 40:1
- Must Plan Ahead
- Difficult to Develop - multiple components
- Techno-phobia
- Status Quo is Easier

The Tool Box



Rapid Response Team

RRT

Medical Emergency Team "MET"

Code Team

Shock Team

Early Warning System "EWS"

What is an RRT?

- The RRT brings expertise to the patient
- A systematic response to early changes in patient status
- Established activation criteria
- "Ramp-Up" and "Ramp-Down" models

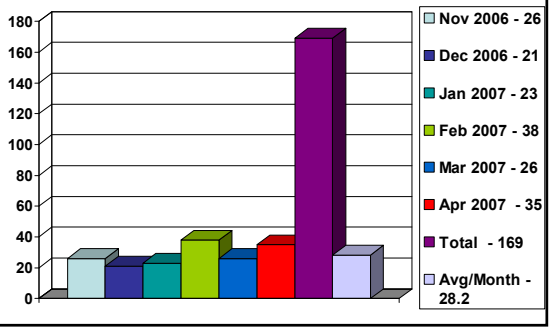
RRT Rationale

- Postoperative adverse outcomes
- Cardiac arrest rates
- Postoperative mortality rate
- ICU Transfers
- Duration of hospital stay

Findings of the first consensus conference on medical emergency teams. Crit Care Med. 2006 Sep;34(9):2463-78

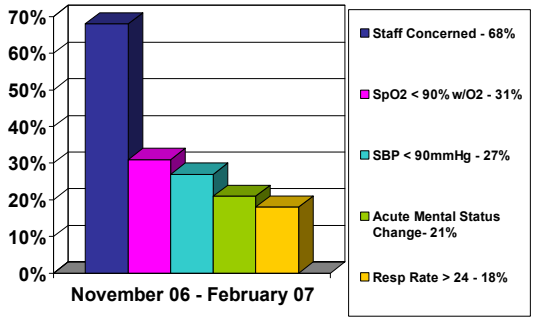
Bellomo R, et al. Prospective controlled trial of effect of medical emergency team on postoperative morbidity and mortality rates. Crit Care Med. 2004 ;32(4):916-921

Call Volume (1 per month per 10 beds)
Nov 06 – Apr 07

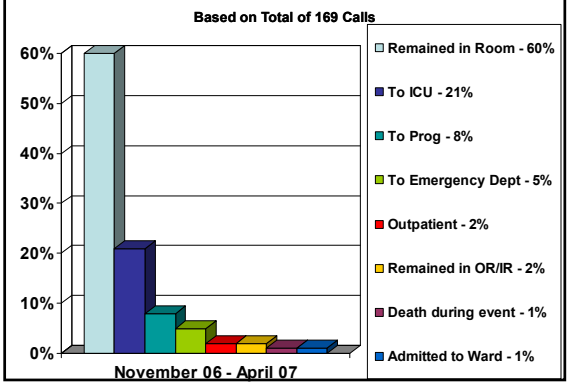


Primary Reason

(Some calls had more than one reason)



Call Dispositions



Institute for Healthcare Improvement (IHI)

PROTECTING 5 Million lives FROM HARM
SOME IS NOT A NUMBER. SOON IS NOT A TIME.

Protect patients from five million incidents of medical harm in the next two years

December 2006 – December 2008

PROTECTING 5 Million lives FROM HARM
SOME IS NOT A NUMBER. SOON IS NOT A TIME.

12 Proven Interventions

1

"Deploy Rapid Response Teams…at the first sign of patient decline"

Outreach and Early Warning Systems (EWS) for the prevention of Intensive Care admission and death of critically ill adult patients on general hospital wards (Review)

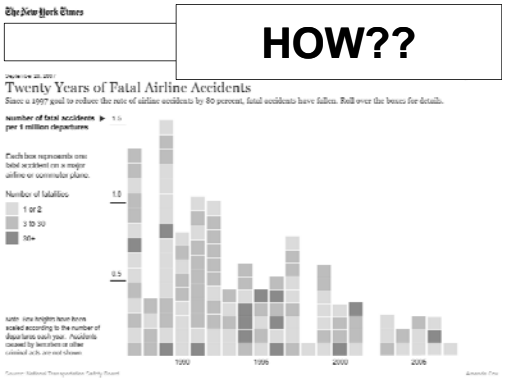
McGaughey J. Alderdice F. Fowler R. Kapila A. Mathew A. Moutray M

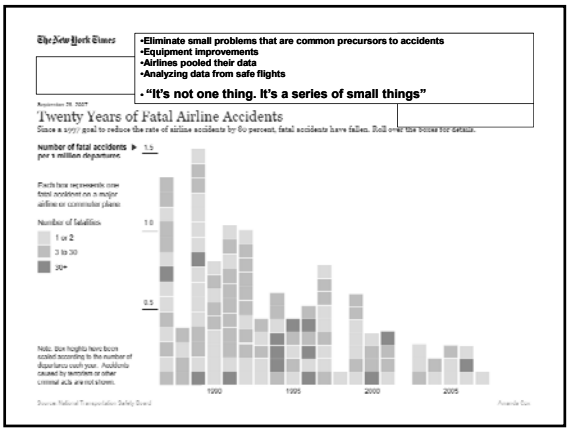
THE COCHRANE COLLABORATION®

CONCLUSION

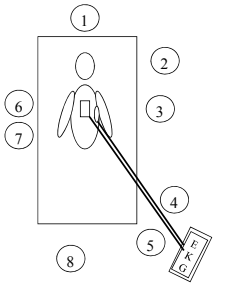
- **Controversy regarding effectiveness**
- **Early detection is possible**
- **RRT' s are only <u>part of a solution</u>**

HOW??





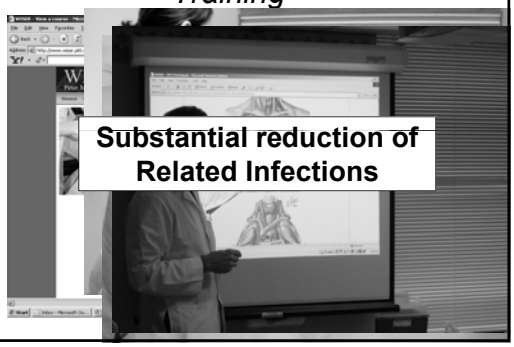
Team Roles & Goals



Crew Resource Management

Personnel	Role, responsibility
1. Airway	Assist ventilation, intubate
2. Respiratory Care	Assist ventilation, oxygen and suction setup, suction
3. RN	Assess enough patent IV's, push meds, defib pads.
4. ICU RN	Prepare meds, record code events
5. Team Leader	Assess team, assign responsibilities, data, direct treatment, triage priorities, triage to next care site.
6. 6. MD/RN/	Perform chest compressions
7. MD RC/student	Perform procedures: iv, chest tubes, ABGs, etc.
8. Aid	Run labs, get chart, assist ICU RN

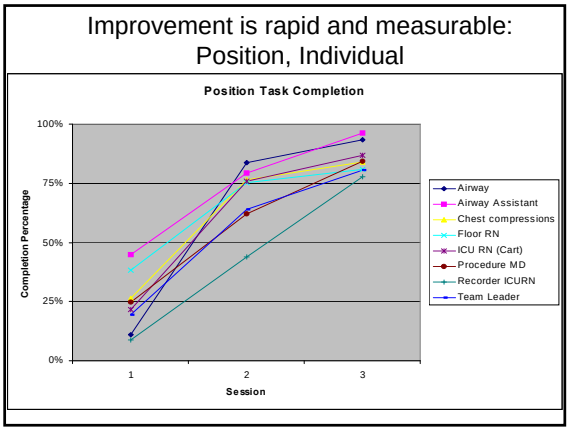
Central Venous Cannulation Training



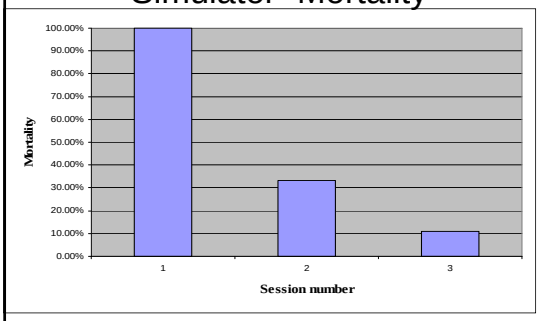
Substantial reduction of Related Infections

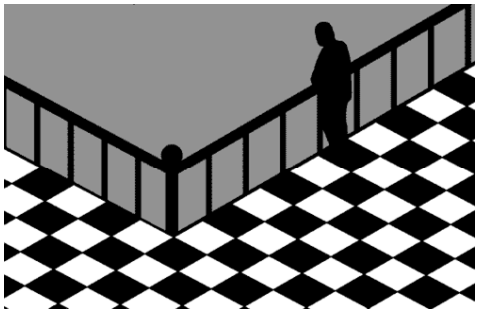
Health System Integration Crisis Team Training

Improvement is rapid and measurable: Position, Individual



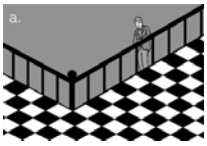
Simulator "Mortality"

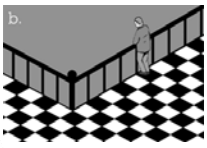


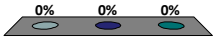


What did you see?

1.
2.
3.

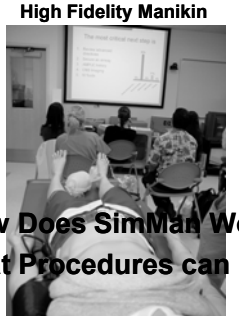






SimMan® Orientation

Human Patient Simulator
High Fidelity Manikin

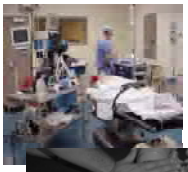


•How Does SimMan Work?
•What Procedures can I do?

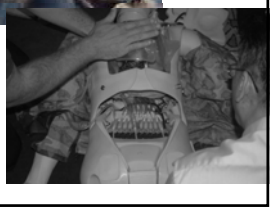
What is SimMan®

A computer operated total body simulator

- **Physiology**
- **Anatomy**



Programmed by teachers and trainers



How does SimMan operate

Instructor :

Pre- Programs Cases/scenarios

Input during training sessions

What can I do with SimMan?

•Radial pulse - left
•Brachial pulse - left
•Evaluate

- **Strength**
- **Regularity**

Carotid Pulse

- Carotid pulse
  - Both sides of the neck

Femoral Pulse

Bilateral femoral pulses are palpable

Respiratory System

- Bilateral sounds
  - rales
  - rhonchi
  - wheezes
- Chest expansion

Heart Tones

- Cardiac auscultation
  - Rate
  - Rhythm
  - Murmurs
  - Rubs

Airway Management

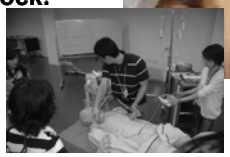
- Endotracheal tube
- Combitube
- Laryngeal mask airway (LMA)
- Retrograde intubation
- Fiberoptic procedures
- Bronchoscopy

Airway Management

- Bag-Valve-Mask
- Jet ventilation
- Ventilators
- Oral/nasal pharyngeal airways
- Light wand intubation

Defibrillation & CPR

- Display rhythm
- Defibrillate
- Cardiovert
- Yell "CLEAR" before shock!



Procedures

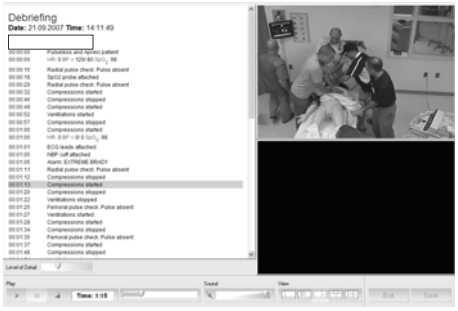
- Needle cricothyroidotomy
- Surgical cricothyrodotomy
- Decompression of tension pneumothorax
- Chest tube insertion

Instructor Monitor

Manikin functions visually displayed

Patient Monitor

Debriefing/Feedback



How can I use simulation?

- Education and Training
  - Procedures and equipment
  - Knowledge and judgement
  - Rare events
  - Team/system orientation
- Evaluation
  - Technical Competence
  - Clinical performance / Decision making
  - Protocol Competence
  - Organization/communication skills

Project SimCritter

PI: Arthur Sampaga - Hilo Medical Center

Co-Investigator: Benjamin W Berg MD-JABSOM

Description

Simulation based crisis team training in a healthcare setting to examine impact on organizational attitudes towards innovation and patient safety.

Project Design

Fall 2007
- Install a center and initiate simulation based training at HMC

Spring 2008
- Conduct simulation based training programs

Fall 2008
- Conduct Safety Climate Survey

Research Evaluation

Compare 2007 and 2008 Safety Climate results

Partners

Hawaii Health Systems Corporation
U Hawaii / JABSOM
US Army Funded

Program Funding

Funding Source: Congressional Special Interest

FY06

$394,203

Safety Climate Survey

- Conducted Annually at HMC
- A Validated survey
- Reflects trends in Hospital staff perceptions
- Leadership readiness for patient centered "Modern" safety programs

Project SimCritter

Results

Survey Trends

Year of Survey:	2005	2006	2007	2008
Number Surveys Distributed:	900	805	900	800
Number Responses Received:	132	316	309	365
Number Surveys Entered:	132	316	308	365
% Response:	15%	39%	34%	46%

Project SimCritter

Results

Safety Climate Trends

	2005	2006	2007	2008
Safety Climate Score Mean (± SD):	67 (23)	71 (19)	**67 (20)**	**71 (20)**
			p=.006	
Safety Climate Mean (± SD):	3.69 (.94)	3.84 (.77)	**3.70 (.81)**	**3.87 (.80)**
			p=.006	
Respondents Viewing Safety Climate as Positive:	50%	53%	**43%**	**52%**
			p=.016	

Project SimCritter

Results

Safety Climate
2008

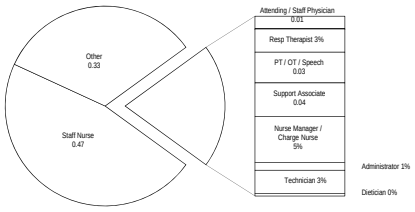
Job Description	Safety Climate Mean	Safety Climate Score Mean	Sample Size	% Total	% With Positive Safety Score
Attending / Staff Physician	3.93	73.33	9	1.37%	0.00%
Physician In Training			0	0.00%	0.00%
Pharmacist			0	0.00%	0.00%
Respiratory Therapist	4.02	75.40	9	2.47%	0.00%
PT / OT / Speech	3.97	74.21	12	3.29%	16.67%
Staff Nurse	3.81	70.21	164	44.93%	17.07%
Other	3.73	69.03	116	31.78%	20.69%
Support Associate	4.01	75.25	13	3.56%	23.08%
Nurse Manager / Charge Nurse	4.13	78.17	18	4.93%	33.33%
Administrator	3.86	71.43	3	0.82%	33.33%
Technician	4.17	79.37	9	2.47%	44.44%
Dietician	5.00	100.00	1	0.27%	100.00%

Project SimCritter

Results

Demographics
2008

Job Description

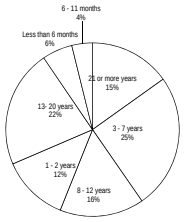


Project SimCritter

Results

Demographics
2008

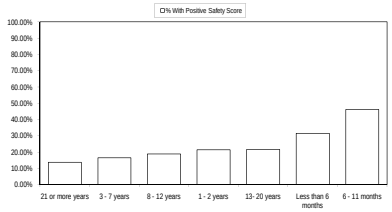
Experience in Position



Project SimCritter

Results

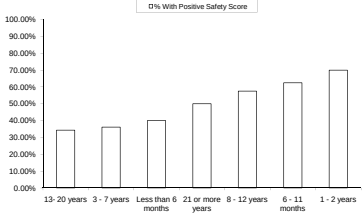
Percent With Positive Safety Score by Experience in Position



Project SimCritter

Results

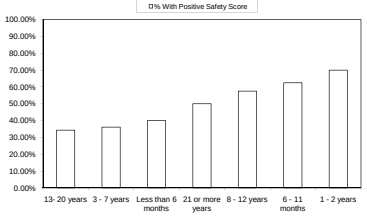
Percent With Positive Safety Score by Experience in Organization



Project SimCritter

Discussion

Percent With Positive Safety Score by Experience in Organization



Project SimCritter

CONCLUSIONS

SAFETY CLIMATE TRENDS

- **Hospital and individual perceptions of the safety climate improved between 2007 and 2008**
- **Consistent trends from earlier years were not detected**
- **Introduction of Hospital based simulation was temporally associated with improvements in safety climate. Definitive cause and effect cannot be determined**
- **Low response rates limit reliability of safety climate survey results.**

SIMULATION CENTER

- Sustainable simulation based training can be effectively introduced in rural hospitals

Discussion


Thank You
MENU

SIMCRITTER
FINAL REPORT 2008

APPENDIX
A-14

Title:

Simulation crisis team training effect on rural hospital safety climate (SimCritter)

Author Names:

Benjamin W Berg MD*

Arthur Sampaga RN †

Victoria Garshnek,PhD *

Kristine M Hara RRT*

Paul A Phrampus MD#

All authors have approved submission of this manuscript.

Departments and Institutions to which the work should be attributed:

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†Hawaii Health Systems Corporation, Hilo Medical Center, Hilo HI

University of Pittsburgh Medical Center, WISER Institute, Pittsburgh, PA

Reprints:

Reprints will not be available from the authors.

Short Title:

Simulation in a Rural Hospital

Keywords: Resuscitation, simulation, safety, rural, technology, safety, rural.

Manuscript Metrics:

Word Count: 2,099

Number of References: 15

Number of Tables: 3

Corresponding Author: Benjamin W Berg

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INTRODUCTION

Simulation-based training is evolving new paradigms for medical education, critical skills development, teamwork, and patient safety in hospitals. High-fidelity human patient simulator (Manikin)-based training is increasingly utilized in hospital crisis team training (CTT), and other patient safety-related areas. Rural hospital safety environments differ from urban hospitals. The primary objective of this study is to measure the impact of introducing medical simulation manikin training programs on safety culture in a rural hospital. The study utilizes results of a widely utilized Safety Climate Survey for primary outcome measures. The hospital Safety Climate Survey is a standardized 19 question, 5 point Likert scale survey instrument permitting longitudinal assessment of organizational safety posture, and potential to maximize patient safety focused interventions. The instrument has been validated (1), and is endorsed by the Institute for Healthcare Improvement (2). Safety culture measurement is described as an index for validation of safety intervention effectiveness (3, 4, 5). The Safety Climate Survey scores represents individual, and aggregate organizational potential to identify and analyze medical errors, and to implement effective solutions. The Safety Climate Survey has been anonymously administered on an annual basis at Hilo Medical Center, since 2002.

Simulation-based training has been reported to be superior to problem-based learning for the acquisition of critical skills (6). Manikin-based simulation has improved team performance compared to didactic training alone (7). Improvement has been observed across a variety of measurable domains, including communication and task performance (8, 9). Human patient simulators allow comprehensive training in stereotypical task oriented team training, typically through resuscitation scenarios, with sophisticated physiologic simulation. Individual and team performance characteristics for clinically familiar problem areas demonstrate 30-40% improvement in critical task performance with 2-3 simulation based team training scenarios (10, 11). Education intervention represents a practical solution for many patient safety improvement efforts, this methodology has however not been definitively studied as a methodology to improve the safety culture. Intensive hospital staff education campaigns have improved some patient safety outcomes, such as nosocomial infection rates (12). We hypothesized that the introduction of advanced

simulation based training for hospital staff, including CTT will be associated with an improvement in year on year safety climate in a rural hospital, Hilo Medical Center.

METHODS

The research conducted under this program was approved by the Hawaii Pacific Health Institutional Review Board. Between August 2007 and August 2008 a multifunctional modern simulation training facility was constructed, and hospital based simulation training programs were initiated at Hilo Medical Center (Hawaii Health Systems Corporation), Hilo, Hawaii. Simulation based training interventions included a standardized Crisis Team Training (CTT) program, as described by DeVita (13). CTT is a CME approved interdisciplinary program consisting of on-line pre-course didactic material, and face to face scenario based training program conducted in a one day hands-on workshop setting. Cardiac Arrest Response Team (CART) members voluntarily completed CTT in March 2008. Additional simulation based training programs were conducted to meet hospital training requirements. The hospital distributed an anonymous Safety Climate Survey in September 2008 to all hospital employees and providers, one year after initiating work on the introduction of simulation based hospital training programs. Safety Climate Survey results were compared to historical hospital Safety Climate Survey results. Differences in Safety Climate Survey scores between cohort results from 2007 and 2008 were analyzed using SPSS (Chicago, IL). Methods included T-tests, ANOVA for multiple group comparisons, and Pearson Chi-Square. Statistical tests were considered significant at the $p<0.05$ level.

RESULTS

Introduction of a modern audiovisual enabled medical simulation center at Hilo Medical Center utilizing the Laerdal SimMan® high fidelity human patient simulator (Laerdal Medical, Wapingers Falls, NY) as the primary training aide facilitated delivery of multiple new simulation based programs. Crisis Team Training was conducted for 45 members of the Hospital Cardiac Arrest Response Team in March 2008. Additional simulation based training conducted for hospital staff between August 2007 and August 2008 included the following programs.

Rapid Response Team

EKG for Cardiovascular Unit

Nursing Assessment and Cardiac Meds (CV)

PALS

ACLS

Emergency Room Trauma Assessment

Procedural Sedation

Trauma Nursing Core Curriculum

HazMat and Mass Casualty Triage

The Safety Climate Survey was distributed to eight hundred hospital employees in September 2008. The response overall response rate was 46%, yielding 365 returned surveys (Table I). Participant demographics and subgroup results are shown in Table II. The safety climate was considered positive (Table III), defined as a safety climate score of >75, by 52% of respondents in 2008, versus 43% in 2007 ($p=0.016$). The hospital Safety Climate Mean likewise significantly increased between 2007 (mean = 3.7) and 2008 (Mean=3.87, $p=0.006$). Subgroup analysis reveals that Staff Nurse Safety Climate Scores were lower that the aggregate 2007 and 2008 scores of other staff members. This difference approached significance ($p=0.051$). No differences were detected between 2007 and 2008 within or between these groups. These subgroups represent the groups with adequate numbers of participants for analysis. The primary study was not powered to detect subgroup effects in other identified subgroups.

Discussion:

This education intervention study proposed to measure the impact on safety climate survey of a manikin-based, safety-focused provider education curriculum. Education interventions represent a practical solution for many patient safety improvement efforts; however, this methodology has not been definitively studied as a means to improve the safety culture or safety climate. Through our data analysis, we sought to understand if directed safety-focused manikin-based training may contribute to an improved hospital safety climate in specific trained units or job descriptions, and if changes across an entire organization can be detected as result of "contamination." This effort also sought to identify the impact in specific professional

groups (e.g., nurses, physicians, and respiratory therapists). The unique aspects of the proposed project included the application of high-fidelity simulation-based training to providers in high-risk clinical environments, in a rural community hospital setting. Provision of technology enhanced advanced training in this setting has the potential to improve patient safety through the demonstrated improved provider performance parameters associated with this training in other settings (14).

Our results document an increase in overall safety climate parameters, at both an organizational level and at an individual provider level, with increased proportion of respondents reflecting a positive safety climate.

The results of the safety climate survey include a relatively low response rate, and a variable response rate amongst disciplines. For instance, physician participation was minimal. The low response rate for the safety climate survey is consistent with the historical response rates. The response rate for the study survey is consistent with response rates in other settings. Safety climate surveys conducted in multiple military facilities yielded a similar response rate of 40% (15). Reasons for low response rates may include variable response rates in specific groups of personnel, although this was not able to be determined from the data collected in the serial surveys reviewed for this report. Specific factors which may influence survey response rates include absence of incentives, fear of non-anonymity, and the risk of "drop-off" inherent to self-administered surveys, as survey length increases. Inherent in low response rates is the potential for skewed responses limiting the reliability of the Safety Climate Survey results and the ability to generalize conclusions.

This education intervention research demonstrated the feasibility of introducing high fidelity manikin based simulation training in a rural hospital. Furthermore, the introduction of this capability and specific crisis team training was associated with a year on year improvement in the hospital safety climate, as measured by a validated survey instrument. We are unable to define a cause and effect relationship between the introduction of simulation based training and education, but are hopeful that this program contributed to provider attitudes and perceptions which are increasingly open to organizational and personal practice changes that support improved patient safety, and that similar changes are propagated throughout an

organization.

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TABLE I.

Safety Climate Survey Response Rates

Year of Survey:	2005	2006	2007	2008
Number Surveys Distributed:	900	805	900	800
Number Responses Received:	132	316	309	365
Number Surveys Entered:	132	316	308	365
% Response:	15%	39%	34%	46%

TABLE II.

2008 Safety Climate Survey Demographics

Job Description	Safety Climate Mean	Safety Climate Score Mean	Sample Size	% Total Respondents	% With Positive Safety Score
Attending / Staff Physician	3.93	73.33	5	1.37%	0.00%
Respiratory Therapist	4.02	75.40	9	2.47%	0.00%
PT / OT / Speech	3.97	74.21	12	3.29%	16.67%
Staff Nurse	3.81	70.21	164	44.93%	17.07%
Other	3.73	69.03	116	31.78%	20.69%
Support Associate	4.01	75.25	13	3.56%	23.08%
Nurse Manager / Charge Nurse	4.13	78.17	18	4.93%	33.33%
Administrator	3.86	71.43	3	0.82%	33.33%
Technician	4.17	79.37	9	2.47%	44.44%
Dietician	5.00	100.00	1	0.27%	100.00%

TABLE III.

Safety Climate Survey Results

	2005	2006	2007	2008
Safety Climate Score Mean (± SD):	**67 (23)**	**71 (19)**	**67 (20)** *	**71 (20)** *
Safety Climate Mean (± SD):	**3.69 (.94)**	**3.84 (.77)**	**3.70 (.81)** †	**3.87 (.80)** †
Respondents Viewing Safety Climate as Positive (Score >75):	**50%**	**53%**	**43%** #	**52%** #

* p = 0.006

† p = 0.006

p = 0.16

SIMCRITTER
ANNUAL REPORT 2008

APPENDIX
A-15

Project Sim CRITTER

PI: Arthur Sampaga; Organization: Hilo Medical Center

TRL: 9

Product Description

Simulation based crisis team training in healthcare facilities. This is a robust commercially available product which is being tested in a healthcare setting to determine impact on organizational attitudes towards innovation and patient safety.

Picture of Project

Benefits

The results of this research will be used to inform the development of military specific training regimes for expanding simulation-based medical training capacity in the Military Health System

Development Phase or Major Accomplishments

Research is completed with final analysis pending

Combined Program Funding

Funding Source: Congressional Special Interest

	FY06	FY08	Total
Funded	**$394,203**	**N/A**	**$394,203**

Next Major Milestone

Data analysis and peer reviewed publication

Development Partners

Hawaii Health Systems Corporation

COR: Dr. Stan Saiki, Stanley.saiki@va.gov